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Disruptive Innovation In An Incumbent Ecosystem- A Case Study of Vipps, MobilePay and mCash

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Abstract

The purpose of this study is to explore how an incumbent can benefit from an existing ecosystem in order to stay competitive in a disrupted market. In Norway, mobile payment apps have been a market with rapid changes since mCash first launched its mobile payment app in 2014. The regulatory changes that comes with the new payment services directive, from EU, PSD2 has also been a factor that has made this competitive landscape an interesting case to follow. Data for this study was gathered by interviews with DNB/Vipps, MobilePay/Danske Bank, Nets, BankAxept and Bits, as well as secondary data to support the interviews. Mobile payment apps, are in research terms, a relatively new topic and there is therefore little previous research to look at. Since, previous research has not focused on the impact of regulatory changes, our findings show that when it comes to the impact of regulation, and the regulatory actor's role as an active member of the ecosystem there is a gap in the theory. Further, our findings contribute to the theory on the Incumbent's curse, and that it may not be as strong as previous studies suggests.

The market of mobile payment apps is in constant change and the impact of PSD2, with its full effect from 2018, will further change and affect the situation we see today.

Content

1.0 Introduction

A survey performed by IAB, in the summer of 2016, revealed that Norway was the second most forward moving market to adopt mobile payments through mobile payment apps by 42% adoption rate, close behind China which had 47%[1]. This high use of mobile phones in Norway has led some of the groundwork for the mobile payment apps in our study. mCash was launched in 2014, and became the first mobile payment app in Norway. Mobile payment apps started out with limited features, and the main focus was *Peer-to-Peer* transactions, known as money transfers between friends. mCash was the only mobile payment app in the Norwegian market from its launch and until DNB presented their own solution the 31st of May, 2015, then Danske Bank entered with MobilePay a month later. The mobile payment apps have the characteristics of disruptive innovations, where the disruptive innovation first captures the low-end part of the market as an underperforming technology that eventually progress to take away the customers from incumbents (Christensen, 1997, p 46). Disruptive innovations are often associated with new market entrants, and these entrants have the upper hand to outcompete incumbents. mCash was the new market entrant in the Norwegian financial market, a market that historically has been working close in order to secure one of the most efficient financial infrastructures in the world.

The initial state of the competitive arena for mobile payment apps was to gather a critical mass of consumers to its same-sided platform through network effects. Gawer (2014) explains that direct network effects are the positive effects that is connected to the number of other users in a one-sided market. For mobile payments this was crucial, as it provided little value to be the only one who had a mobile payment app, as it only transfer money to other people with the same app. Vipps became a strong actor amongst the mobile payment apps, and eventually the term "Vippse" was incorporated into the Norwegian society by the end of 2015. Eventually, the competition has evolved into a complex situation, where the number of user on one side, was not enough to be successful in the market. This lead the mobile payment apps to develop the *Peer-to-Market* side of the apps, and created a multi-sided platform. These platforms bridge together two different

[1] http://www.iab.com/wp-content/uploads/2016/09/2016-IAB-Global-Mobile-Commerce-Report-FINAL-092216.pdf

types of consumers, that originally would not have been interacting, and the consumer's benefit grows with the number of other users the platform can offer (Gawer, 2014; Armstrong 2006).

The strong interdependencies, and the self-regulation, that the Norwegian financial market had benefitted so strongly from in the past, has also been a big influencer for the development of the mobile payment market. Garud and Karnøe (2003) propose a framework for the independencies of an economic ecosystem, consisting of regulatory actors, infrastructural actors, consumers and competitors. Self-regulation have given the banks a lot of freedom to find good solutions for the banks, but also other actors in the ecosystem. The literature on the impact of regulatory changes has been given little attention, and can be seen as a gap in the literature. Ansari et al (2016) found in their study that disruption is not a straightforward process, and that there are a lot of challenges affiliated with it. One of the areas that they would urge further research on, is how disruption in one part of the ecosystem, will affect the others. Here we would like to add to the discussion on how changes in regulation can impact which actors that can be involved in the economic ecosystem, and further strengthen the insights of Ansari et al (2016).

The incumbent ecosystem wants to work together towards an efficient, underlying infrastructure in order for mobile payments to become a more efficient way of payment. Self- regulation may also have had its part in protecting the banks from a lot of competition, which has led the European Union, in 2012, to revise the Payment Service Directive from 2007. The Payment Service Directive 2, is in many ways a way to regulate the market power that the European banks have had for several years, and will hopefully help to foster innovation. By opening up the market, and making it available for actors outside of the banking industry, had and will continue to have implications for the Norwegian mobile payment market. One of these implications is the consolidation that took part from the fall of 2016, and announced in February 2017. Vipps invited other banks to join them in a collaborative effort in order to strengthen the power behind Vipps, in anticipation of the changes that comes with the new regulations from the EU.

Intrigued by a market developing in real time, where the incumbents and the entrant competing to be the favorable mobile payment, we wished to further

explore the strategic moves that have been done, and how the regulatory changes could affect the market of mobile payment apps. This led us to the following research question:

" How can incumbents use the existing ecosystem to benefit from the new competitive landscape of a disrupted market?"

We examined this question by discussing four different sets of theoretical topics that can contribute to define the characteristics and capabilities of mobile payment apps. First, mobile payment apps have the potential to be defined as a disruptive innovation. Second, the incumbent's curse may not be as strong as proposed by Raynor and Christensen in this ecosystem. Third, the incumbent ecosystem can potentially diminish the effects of an incumbent's curse. Lastly, regulatory changes may inflict larger structural changes on the incumbent ecosystem as it changes the nature of the market, by opening up and inviting others to join.

2.0 Theory

There are several important factors that influence the development of mobile payment applications. There is a lack of research on how disruptive innovation relate to the emergence of ecosystems that they are embedded in (Ritala & Aarikka- Stenroos, 2016). We will present important concepts and factors relevant to the research question at hand. First, a look at what defines a disruptive innovation. Second, we will build on the theory of disruptive innovation and look at threats and problems facilitating disruptive innovations within an organisation. Third, we look at how the ecosystem and path creation helps define the development of a disruptive innovation. Lastly, the authors look at the theory of multi-sided platforms and network effects.

2.1 Disruptive innovation

A disruptive technical innovation is in the view of Clayton Christensen, an innovation that at first is underperforming in relation to the already established technology and usually a cheaper technology which progress on its own before eventually starting to invade the established customer network, and then take

customers from it (1997, p 46). Christensen (1997, p 150) stated that ‘‘*disruptive technologies are typically simpler, cheaper, and more reliable and convenient than established technologies’’*. Historically disruptive innovations have been linked with market entrants, and sustainable innovation with the incumbents in the market. Although this can be, and often has been the case, a disruptive innovation is not connected to who released it, but the attributes of the technology (Schmidt & Druehl, 2008). Erwin Danneels (2004) felt that the definition of Christensen was too wage and although it typically was such as Christensen says, it is not always the case. Therefore Danneels (2004) propose the following definition of a disruptive technological innovation: "*A disruptive technology is a technology that changes the bases of competition by changing the performance metrics along which firms compete*".

In the 2003 edition of The Innovator's solution, the term "disruptive technology" was replaced with "disruptive innovation". Christensen and Raynor (2003) further acknowledged that there was two different types of disruptions; *low-end disruptions* and *new market disruptions.* Low end disruptions enters in the low end of the original market, and then progresses its way upward to the higher ends consumers of the market, whereas new market disruptions targets the area of *nonconsumption* where there previously were no consumers either in form of too expensive products or that they were too complex to be attractive. Danneels (2004) saw the extension of the previous work of Christensen to now be deemed as disruptive innovation, as a way of stretching the scope of the definition and encouraged further research and development of the term. Both Markides (2006) and Schmidt & Druehl (2008) are in support of this view. Markides points to the fact that even though what Raynor and Christensen mentions as disruptive innovations, are so widely different in its nature, the term is not accurate enough. Markides introduces two other disruptive innovations; *business model innovation,* formerly called strategic innovation in his earlier works, and *product innovation* to go alongside with disruptive technical innovations.

2.2 Organizing for disruptive innovations

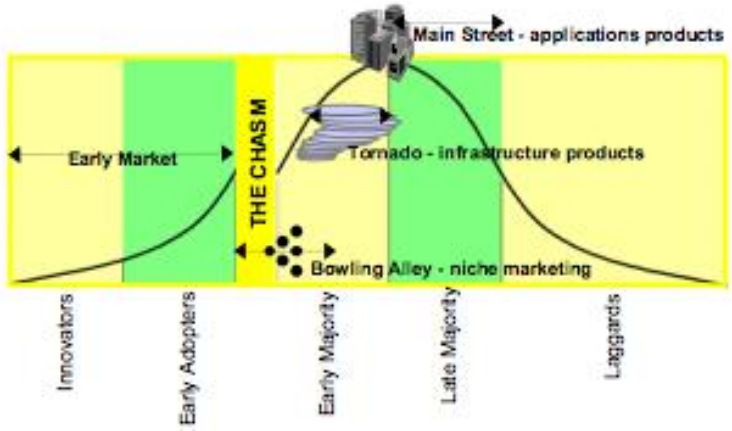
Kanter (1999) suggests that organizations with successful disruptive innovations have a clear business agenda, strong partners committed to change, investment by both parties rooted in the user community, links to other organizations, and

commitment to sustain and replicate results. Some research suggests that larger organizations have a potential disadvantage to smaller organizations as the smaller organizations can leverage their capabilities for innovative solutions and are more agile dealing with organizational change, as well as managing disruptive innovation (Moore and Manring, 2009; Hyvonen and Touminen, 2006). However, the constant focus several companies have on maintaining a stable and efficient context to satisfy mainstream market demands, forces many organizations into learning traps. These learning traps forces many organizations into a focus on the "familiar", the "mature" and the "proximate". These three learning traps all eventually constrains the organizations ability to create and explore potentially disruptive ideas (Ahuja and Lampert, 2001).

Further, there are both internal and external barriers or inhibitors that may hinder companies to foster innovation. Marnix Assink (2006), have identified different clusters of interrelated and partly-independent inhibitors which he believes negatively affect an organization's disruptive innovation capability. He then argues that there are five clusters of innovation inhibitors, the first cluster is based on organizational rigidity and existence of a dominant design carried on through the successful concepts from the past. This limits the company to take risky innovative initiatives or cannibalizing its past investments. The second cluster comprises the inability to unlearn, lack of distinctive competencies and maintaining mental models that are out of sync which has a major influence on a company's ability to develop and implement disruptive innovation successfully. It discusses the inability to discard outdated beliefs and show that there is a lack of competence to challenge the rigidities in skills, knowledge, mindsets and mentality to face strategic dilemmas. The third cluster of inhibitors is related to the company's attitude towards business risks, because of a risk-averse culture. The fourth cluster involves sub-optimal innovation process management. The lack of an adequate team, motivation, commitment and out-of-the-box creativity lead to an ineffective disruptive innovation process. Lastly, the fifth cluster represents an infrastructural barrier. Exogenous and endogenous infrastructural inhibitors can delay the redeployment of radical innovations over a long period during which both the market and the demand may change substantially (Assink, 2006). Other barriers that are also mentioned in research include not providing funds early enough to support the exploration process, not cultivating an outside

perspective and jumping the gun rather than allowing for natural innovation (Gilbert & Bower, 2002), in addition the lack of competencies to embrace change in the organization is also a specific barrier to disruptive innovation (Henderson, 2006).

Further, a common problem for many companies is to get their product adopted by the mass market. Moore addresses this problem and explains it with the following model.

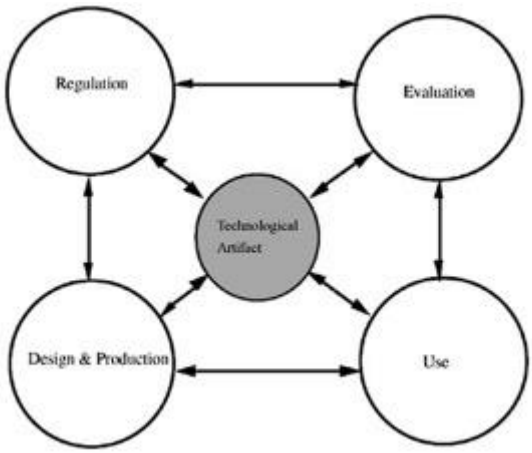


He claims that a disruptive innovation only begins to be realized when the marketplace shifts to adopt a new paradigm in what he calls the "tornado" of adoption. When the tornado first start, it is not long before a majority of potential customers in the marketplace change their past behavior with the promise of gaining equally dramatic benefits from the new paradigm(Thomond & Lettice, 2002).

2.3 Ecosystem and Path Creation

A business ecosystem is defined by Moore (1996) as "an economic community supported by a foundation of interacting organizations and individuals – the organisms of the business world". When introducing a disruptive innovation in an already existing ecosystem, the innovator needs to introduce- or build some interdependency to complementary components in order to get the incumbent actors involved(Ansari et. Al, 2016). According to Ansari et al (2016), industry ecosystems are business networks of multiple interconnected firms that are dependent of each other for effectiveness and survival. This ecosystem are business networks that consist of consumers, competitors, regulatory forces as

well as other institutional agents. If the innovation includes a multisided platform the importance of a well-functioning ecosystem is clear, as it fosters *coopetition*, where many businesses both compete and cooperate simultaneously (Ansari et al, 2016). The development of a business network happens through self- organizing, emergence and co-evolution (Peltoniemi & Vuori, 2008). The emergence of a new technology has many different considerations and potential actors to participate in its development. Path creation has a relational view of how agency is formed through interaction in sociotechnical action nets (Karnøe & Garud, 2012). Action nets are closely related to actor-networks, but action nets are more loosely coupled and is formed as well as absolved in real time (Czarniawska, 2004;Karnøe & Garud, 2012). An important aspect of this literature is that one actor alone cannot create a new technological path, but it is a collaborative effort from multiple actors (Garud & Karnøe, 2003). How the agents in the action nets are involved and embedded in the ongoing technological emergence can vary from each agent in the action net. New ideas are formed through interaction of human resources, economic resources, materials as well as regulations (Karnøe & Garud, 2012). Each part of the action net brings its own "frame of reference", as to how they see the future and emergent path of the new technology. The levels of inclusion from different actors that are distributed in the action net, can vary from agent to agent, but the level of one agent can also vary through time (Garud & Karnøe, 2003). Path creation does not understand the agencies as locked into either the past, future or present, but a journey where these three components are intertwined together in order to go forwards (Garud et al, 2010; Karnøe & Garud, 2012). Garud and Karnøe (2003) propose the following framework as to how agents are connected in the emergence of a new technology :



The path is created through the inputs the different actors contributes through learning and knowledge generation from the interaction between actors. Users learn by doing, and in testing the new technology, this can generate feedback from evaluating the artifact, to the producers and designers, as regulations can create policies or laws that steer the path in one direction.

2.4 Multi-sided platforms

Going further from the stated problem of gaining the mass market, mobile payment solutions are all dependent on attracting a critical mass of users in order to be a success. This nature of being a platform, which also is known as two-sided markets, multisided markets, is that the more users that it has, the more value it gives to the actors involved. That way, you also need to attract a given number of users in order for the multi-sided platform to benefit from network effects, and attract users on both sides of the platform (Gawer, 2014).

Platforms are seen as a way of facilitating different types of consumers that without the platform would not have a way of interacting with each other (Gawer, 2014). One definition of two-sided markets is from Armstrong (2006, p 668), where he says that "*two groups of agents who interacts via 'platforms' where one group's benefit from joining a platform depends on the size of the other group that join the platform"*. This definition is in line with the literature stream of platform ecosystems which recognizes the importance of the industrial community and surrounding ecosystem in order to be successful (Thomas et al, 2014). Within multi-sided platforms there are network effects, these are essentially divided into two different types; direct effects, and indirect effects. Direct effects, or network effects are the positive effects that arises when the benefit of a user depends on the number of other users. Indirect effects arise if the benefit of at least one of the groups depend on the number of user in the other group, and the decision to participate is based on the number of users on the other side (Gawer, 2014). An example of this is the merchant's decision to join one particular mobile payment app, will depend upon their anticipation of the number of consumers that are/will be using the same app. The direct and indirect network effects give the platform owner a chicken and egg problem, as it needs to bring in users on both sides of the platform in order to attract users, and that none of the sides wants to join if there is

not at least an anticipation that people on the other side will join (Caillaud & Jullien, 2003). In order to overcome this problem, many scholars suggest that adequate prizing and the use of subsidies can overcome this problem. The indirect network effects is a strong contributor to a "winner-takes-all" situation (Gawer, 2014). Caillaud and Jullien proposes that the best prize strategy when faced with indirect networks effect is a "divide- and conquer", which means to subsidize on side (divide) and make up the losses on the other side (conquer). In an open market it is more difficult to regain your losses from one side, than in a winner takes all situation where it can be said to be a working monopoly as you have larger user base in a monopoly situation.

3.0 Research Method

3.1 Setting

The researchers chose the mobile payment applications in Norway to conduct the exploratory study. The mobile payment apps surfaced in 2010, and since then the rapid changes in technology have helped drive customers into a more cashless world. In this study, the researchers will look at the case of three mobile payment applications with the biggest market share in Norway: Vipps, MobilePay and mCash. Even though mCash consolidated with Vipps during the course of this study, we will analyze the role of mCash previous to the consolidation. The researchers chose this research setting for several reasons. Firstly, the setting is current and highly complex. Secondly, mobile payment apps can be considered a disruptive innovation and lastly, there are very few studies conducted on this topic.

3.2 Case study design

This thesis was examined through a qualitative, exploratory case study and hence followed an inductive approach. The unit of analysis was the three mobile payment applications, Vipps, mCash and MobilePay. Furthermore, an interpretive approach was used, where the goal of this approach is understanding, rather than making predictions.

One of the main contributors to the field of research method and design in a case study approach is Yin (2014, p. 16), he defines the case study as, "*An empirical inquiry that investigates a contemporary phenomenon (the "case") in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident".* The case study approach is preferred when *how* and *why* questions are to be answered. As the researchers aim to gain a more thorough understanding of how incumbents can use the existing ecosystem to benefit from the new competitive landscape of a disrupted market, the case study was considered to be suitable.

Even though the research was conducted within the three different mobile payment apps in Norway, the main focus was not to study the elements of a comparative design, however, the researchers did the study with a longitudinal design which involves studying a case at two, or more, different points in time. This allows the researchers to get an in-depth understanding (Yin, 2014), and provides rich data and insight. According to Yin (2003a) there are six alternative sources of evidence for case studies: documents, archival records, interviews, direct observation, participant-observation and physical artifacts. The mobile payment apps have experienced several changes where the researchers have had to follow a "before" and "after" logic by looking at archival information and conducting several interviews. The inductive approach, allows the researchers to generalize based on observations found in primary and secondary data.

3.3 Data collection

This study has multiple sources of evidence, the sources are both primary and secondary data. The researchers has collected the primary data through a number of interviews, and to support the findings the researchers has collected a vast number of secondary data to get a broader understanding of the research area.

3.3.1 Primary data

The primary data was collected through the conduction of 8 semi-structured interviews with 8 leaders whereas 1 was female and 7 were men. The interview objects all have CEO or management positions. None of the interview objects wanted to be anonymous and the companies represented are DNB/Vipps, Nets,

Bankaxept, Bits, and Danske Bank/MobilePay. Below you will find a schematic overview of the interview objects.

COMPANY	NAME	POSITION	INERVIEW SETTING	INTERVIEWEE LOCATION
BankAxept	Bjørn Skjelbred	Head of Mobile	Face-to-face	Norway
Bits	Eivind Gjemdal	CEO	Face-to-face	Norway
Nets	Freddy Haraldsen	CEO (Resigned 31.february 2017	On the phone	Norway
Nets	Hans Henrik Hoffmeyer	Senior Vice President in Mobile Services	On the phone	Denmark
Finans Norge	Jan Digranes	Head of betalingsformidling, digitalisering og banksikring	On the phone	Norway
Danske Bank/MobilePay	Jeanette Hertzum	Head of MobilePay Business Solutions & Marketing	On the phone	Denmark
Danske Bank/MobilePay	Knut Anders Wangen	Head of MobilePay Norway	On the phone	Norway
DNB	Thang Manh Tran	Head of Business Development in Vipps	face-to-face	Norway

Table of Interview objects

It is important to plan the process and create a progress plan for the study before starting the interview process. The researchers did this by creating a tentative schedule of interviews in order to structure the progress of the thesis.

3.3.2 Participants

The researchers first gained access to potential respondents through a personal connection within the bank industry. After receiving mail addresses and numbers on the respondents that were interested in contributing to this paper the researchers sent a formal email to arrange a meeting. The researchers had some of the interviews in person and other on the phone. This was necessary as the respondents availability was limited as well as two of the respondents were located outside of Norway.

The researchers used a selective approach when finding the participants, which means that the respondents were not chosen at random. To get the appropriate information, the researchers aimed to get in dialog and interviews with managers who had direct responsibility for their company´s connection to the unit of analysis. This means that all of the participants were on management level in their company, respectively.

There is always a challenge to get in contact with respondents, our connection was kind enough to offer some help to both find the right people for this particular research and encouraged them to contribute. This proved to be very effective as almost all of the participants wanted to book an interview.

3.3.3 The interview guide

The researchers aimed to have questions that were open-ended, in order to not lead the participants into certain paths and answers. Questions like *"When and how, did the development of mobile payment applications start in Scandinavia"*, allowed the participants freedom to give information they found relevant in terms of mobile payment applications. Before deciding on the end version, the draft of the interview guide was sent to the researchers´ supervisor, Jon Erland Bonde Lervik, for approval. After evaluating his suggestions, the draft was again mended to better capture the intended topic of research. The interview guide was developed in both Norwegian and English versions, due to some of the interviews were done in English. All participants received the same or similar questions.

3.3.4 Semi-structured interviews

As mentioned, the researchers have conducted several interviews with key individuals in the respective companies. The chosen method to perform was qualitative interviews which is a general term that include interviews of both the unstructured and semi-structured kind (Brymann & Bell, 2015). Characteristics of these two interview methods are that they tend to be less structured, the focus is on the interviewee's point of view, rambling is encouraged and there is less focus on following the guide or schedule (Brymann & Bell, 2015).

The interviews were either in person or on the phone. The in person interviews were held at the participants headquarters in Oslo. Each participant was free to suggest time for the interview and decided where the meeting would take place. The reason behind giving the participants this much flexibility was simply because the topic of research is in constant change and the researchers did not want to add any time pressure or other elements that could stress the participants which could have caused participants to withdraw from the study. Even though the participants chose the time and date of the interview, the data collection process did not take more time than expected and the interviews were concluded around scheduled time.

The researchers decided not to send out the interview guide unless the participants asked for information before the interview. This was done with the intent that the participants would not prepare their answers in advance of the

interview, however they all got a short introduction to the research topic in the first email that was sent out. The researchers found this approach highly valuable as the participants reflected upon and discussed the questions as the interview was conducted. Semi-structured interviews gave the researchers flexibility as one could follow up on comments and remarks that was viewed as significantly interesting. Semi-structured interviewing allowed the researcher to have an open mind about what he/she needs to know about, so that concepts and theories emerges out of the data (Bryman &Bell, 2015). The interviews were audio-recorded and transcribed shortly after each meeting in order to capitalize on the impressions whilst still fresh in mind. Notes were also taking during each interview, this contributed in additional comments and questions during the interview. In addition non-verbal communication and body language were observed during the interview and relevant observations were written down. The interviews lasted for approximately 30-45 minutes explicit small talk.

Both researchers were present during interviews. The researchers took turns in asking question where the other provided comments, thus there were no formal rules as of who took the passive versus active role in the interview. This approach turned out to be highly efficient, and created a natural and comfortable environment for both the participants and the researchers.

3.3.5 Transcription of Interviews

Both researchers transcribed the interviews independently. In order to ensure transcriber reliability the researchers agreed on some guidelines for the transcription. Researchers were to transcribe all spoken words from the interview except for sounds like *hmm* and *eeh.* Some minor grammatical errors were corrected, however the researchers did not rephrase sentences. There were no software involved in the transcription process.

3.3.6 Secondary data

The researchers rely heavily on secondary data, which is data collected by other individuals or companies, in order to get a better understanding of the context of mobile payment apps. Secondary data such as articles, published articles, reports and government records, have been gathered and analyzed during the whole process of writing this thesis. The researchers obtained much of the secondary

data from the websites of the companies that were interviewed where the researchers found reports, articles and press statements which were helpful for the study. In addition, the researchers used newspapers both online- and in paper format for interviews and other information. Furthermore, secondary data was used when developing the appropriate interview questions. The researchers went through an extensive amount of secondary data, however not all of the data were incorporated as cited articles, but used by the researchers in order to gain background information about a complex research context.

Secondary Data		
Type of secondary data	**Read but not cited**	**Cited**
Articles	9	1
Reports	7	3
Financial reports	6	1
Presentations	5	1
Website articles	73	30
Podcast	3	3
Youtube	6	1

3.4 Analysis

Qualitative case studies often result in large amounts of unstructured data, which makes the analytical process both tedious and complicated. The secondary data, interviews and notes the researchers gathered contributed to the accumulation of extensive textual data.

The researchers started “playing” with the data in a search for patterns, insight or concept that seemed promising. This gave a clear indication of which concepts that needed to be focused on further. Then, a thematic approach was applied in order to identify and discover patterns in the data. The data was sorted into categories and matrices in hope for defining more specific categories. This approach was highly effective and it quickly identified four main categories; Infrastructure, regulation, market and organization. These four categories showed the biggest patterns for the relevant research topic. The researchers divided and placed the data in the categories, respectively. The data was color coded within each of the four categories, this made it easier to analyze what each of the mobile payment apps did in the respective categories and to identify the correlation between the categories. By this categorization it was also easier to

remove information in the data that were not relevant for the research topic. As the data collection process lasted for several months, the results consequently formed gradually throughout the process. This approach emphasized the close connection between literature search, data gathering and the actual analysis in the research (Bryman & Bell, 2015). The researchers experienced that the case was highly complex and therefore needed to revisit the data several times in order to identify and explore commonalities and differences and linking them to the research question.

3.5 Ethical Considerations

There are four main ethical principles in business research, they state as follow, one should not do research that will (1) harm participants, (2) show lack of informed consent, (3) is in any form an invasion of privacy or (4) has some degree of deception involved (Bryman & Bell, 2015). The researchers have had a focus on the mentioned ethical principles during the entire process of writing this thesis. It is important not to enter into any grey-areas or cross any boundaries that can compromise the study. The researchers aimed for the study to not be confidential, in order to be able to share the data and results, as this helps to bring further knowledge about this topic. The participants was therefore asked to sign a consent form which allowed the researchers to use all the information gathered in the interview. However, confidentiality, privacy and anonymity of the participants is important, the researchers therefore made the transcripts unavailable for everyone else than the authors. In addition, participants could regret and withdraw the interview if necessary, further if there were parts of the interview that the participant wanted to remove, that wish was respected. The main focus was to create a good and professional relationship with all the participants as well as protect the interests of the participants, therefore the transcribed material were sent back to the respective participant in order for him/her to remove any misinterpretations and get the right perspective and understanding.

Further the researchers kept in mind the ethical guidelines in regards to the data collection. Caution was taken to avoid mistakes and misrepresentation of data. The researchers tried to their best ability not to use data that they were not completely sure could be legitimately used for research purpose. All quotes and

findings are directly deducted from the interviews and secondary sources such as reports and articles, and the researchers have, to the best of their knowledge, done all they can do in order to ensure that this paper contains no fabrications, falsified claims or misrepresentation of the data. In addition, the focus have been to present honest and correct results, so that other people can use the research for their own purpose.

The researchers have not experienced any big ethical obstacles during the process of writing this thesis. The authors managed to maintain a good professional- and personal relations throughout the process, where both have put in a fair amount of effort to achieve the common goals. Integrity and honesty have been important factors in writing this paper as it helped the authors to keep their objectivity along the way.

4.0 Findings

In the following section the findings will be presented. First, we will shortly introduce the case we are studying. Second, discuss and evaluate the different "areas" of interest that affects this case. Even though all the areas are connected we will go through every area separately because each area is highly complex and involves important factors for the innovations to navigate through this ecosystem. We have chosen to start with regulation, as this can contribute to the understanding of historical events in the Norwegian financial industry, and also how regulation have, and will affect other areas of this study. Then we will move on to organization and market, which are closely related in our study and lastly look at the infrastructure and its importance for this case. Last, we will summarise the findings in an overview table.

4.1 Introduction to cases

4.1.1 mCash

The mCash name was launched by Daniel Döderlein and his team in 2010. At that time, there was no other mobile payment app present in the Norwegian market. The mCash team worked on their solution, and at the same time went to many different banks to try and sell their mobile application, but they all

declined the offer, including DNB. On the February 25th 2014, mCash launched the app in collaboration with BN Bank. The solution was open for everyone, but for customers that were affiliated to BN Bank it was possible to do transactions directly through the bank account, and not through Visa or Mastercard.

In mid-October 2015 Sparebank 1 decided to buy the Norwegian part of Mcash. This means that they took over the customer base that comes with about 100,000 unique users as well as "a few thousand" merchant agreements.

4.1.2 MobilePay

Danske Bank launched MobilePay 7th of May 2013, in Denmark. The initiative started as a collaborative initiative from all the banks in Denmark, where they would create a joint mobile payment app for all the banks to use. When MobilePay launched they gained 25.000 users within 24 hours. Within ten months, MobilePay had reached 1 million users.

In August 2015, MobilePay launched in Norway. MobilePay quickly made it possible to pay at Rema1000, Narvesen and 7-eleven. In October 2016, MobilePay announced that they were going to separate MobilePay out of Danske Bank and invite all the Nordic banks to join MobilePay as distribution partners.

4.1.3 Vipps

DNB is by market value, the biggest financial bank institution in Norway. Vipps was launched the 31st of May, 2015. DNB had spent a year developing the solution. Vipps reached 1 million users the 1st of January 2016.

On 13th of February, DNB announced that 106 banks would be joining them and take part of Vipps. The consolidation was between DNB, Sparebank1-alliansenm Eika Alliansen, Sparebanken Møre and 15 independent saving banks. The banks that came from Sparebank1-alliansen chose to be part of Vipps instead of continuing their efforts with mCash.

4.2 Regulation

There are both national and international regulations which are developed to improve the market for the customers and the actors involved. Sometimes there is a need for external competence which in this case is Bits, Finance Norway and The European Union. PSD and PSD2 were developed and launched by the EU to

promote competition in the market. These regulatory changes altered the rules of the game, as well as being a resource to push the innovation process in the right direction. The directive has had a huge impact on the decisions for the actors within the ecosystem, deciding whether to face the new challenges alone or together.

4.2.1 Self-regulation

The Norwegian infrastructure for payment services is based on the principle of self-regulation, which the government believe has worked out well[2]. The self-regulation has mostly been initiated amongst the banks themselves. Self-regulation covers a large number of practices, common rules, codes of conduct and voluntary agreements. This is established voluntarily by economic actors, social players, non-governmental organizations and organized groups to regulate and organize their activities. The regulations do not involve a legislative act. However, self-regulation depends on the existence of bodies and processes to support self-regulation, including the building up of consensus amongst market players on the contents and the monitoring of enforcement. The benefits of self-regulation include that it may provide greater speed, responsiveness and flexibility as it can be established, implemented and altered more quickly than legislations. It may therefore be preferable in markets that are changing rapidly[3].

It is Bits´ task to maintain a good infrastructure that is beneficial for the Norwegian society, such that Norwegian authorities see that it is in the country's best interest to continue with self-regulation also in the future. In 2016 Bits AS was formally established. They are responsible of maintaining the self-regulation of the industry by managing and continuing the common infrastructure policy, developing and managing standards and safety regulations. In addition, Bits is responsible for establishing and managing agreements and regulations. Bits is owned by Finance Norway and is based on a merger of the Banking Standardization office (BSK) and Finance Norway´s Payment Service Department. The establishment of Bits is a result of the financial industry's goal

[2] http://www.bits.no/en/om-bits/#om-2

[3] http://ec.europa.eu/smart-regulation/impact/commission_guidelines/docs/ia_guidelines_annexes_en.pdf

of strengthening and revitalizing work on a joint infrastructure. This hopefully makes the industry better able to cope with the challenges the future will bring as a result of new technology, new players and international regulations[4].

The self-regulation has been a two-edged sword for the banks. In one way it has nurtured an infrastructure, that eventually has manifested itself as highly cost-efficient with BankAxept as the underlying reason. On the other hand, this self-regulation has been contributing to a protectionism in the market and given the banks a lot of market power and control, which then in turn has given them little, or no reason to innovate and stay alert for other possibilities. As the CEO of DNB, Rune Bjerke, puts it:

"We have been sleeping in class, the Norwegian banks have been sleeping in class(...) it is about to take part in the new value chains that emerges as soon as possible" [5]

Even though the financial industry wants to continue with self-regulation, the pressure from the European Union is getting stronger. PSD2 is one example which can change how the financial industry operates today. The changes, in laws and regulations, intend to provide better consumer protection and an open market, however these changes can lead to increased and new threats that the financial industry must address.

"Self-regulation of the banks, means that you withhold the banking system in the banks' self interest. This is some of the reasoning behind PSD2- the banks are too powerful, the payment card companies are too powerful- so we should let other actors into the market" [6]

4.2.2 PSD

The Payment Services Directive (PSD) was adopted on 13th November 2007, but not implemented into national law until 2009. The directive provided a legal framework for payment services in the internal market of the EU/EEA. The purpose of PSD was to establish a single payment market in the EU, providing the

[4] http://www.bits.no/om-bits/
[5] Secondary data, Rune Bjerke, CEO of DNB, 28.02.2017
[6] Interview, Bjørn Skjelbred, Head of Mobile Payments at BankAxept, 09.03.2017

regulatory framework for a single payment market, creating a level playing field and enhance competition. In addition, PSD was supposed to ensure consistent consumer protection and improve transparency and create the potential for more efficiency of EU payment systems[7]. Since the PSD was presented, the digitalisation of the European economy has progressed. New services, provided by new players, have appeared for online payments. The problem was that the new players were outside the scope of PSD and therefore not regulated at EU level, and in that way did not have the desired effect[8]. In 2012 the PSD was reviewed, and the conclusion was that the directive was not sufficient enough, the European Commission proposed revised legislation, known as Payment Services Directives 2 (PSD2).

4.2.3 PSD2

The PSD2 is a fundamental piece of payments-related legislation in Europe and will be implemented as national law in Norway, by January 13th 2018. The goal of PSD2 is to foster innovation, enhance consumer rights, and strengthen the security of online payments as well as account access within the EU and EFA[9]. Christoffer Hernæs, in Skandiabanken says that PSD2 was on the agenda of a conference in Norway in 2015, but was gently dismissed by the participants. He explains that the reason for this was that the banks were able to lobby themselves out of the big impacts that PSD was meant to have, and therefore was not very concerned from the beginning[10]. We have divided the impact of PSD2 into two categories: competition and privacy.

Competition

The effects of PSD2 are yet to be discovered, but it is natural to assume that it will increase competition from other international actors which in turn forces the Norwegian actors to make strategic choices in order to strengthen itself against this increasing competition. PSD2 will open up the market for Third-Party-Providers (TPP), this means that banks no longer will compete only against other

[7] https://www.abe-eba.eu/downloads/knowledge-and-research/Banks_Preparing_for_PSD_version_1_1_November_2008.pdf
[8] https://www.finansnorge.no/tema/bank/psd2-eller-betalingstjenestedirektivet/?pageid=53333#p53333
[9] https://www.evry.com/no/media/artikler/psd2-the-directive-that-will-change-banking-as-we-know-it/
[10] https://www.youtube.com/watch?v=ta-MGVV6f2M

banks, but all providers of financial services[11]. We can categorize the TPP´s in Payment Initiating Service Providers (PISP), Account Information Service Providers (AISP) and Payment Instrument Issuing Service Providers (PIISP). PISP can deliver payment services based on the bank customers bank account or the bank's existing payment infrastructure, such as online banking. AISP can deliver account information based on the bank customers bank account. PIISP will deliver a coverage control of the bank customer's payment card, examples can be loyalty cards that is configured to a person's bank account[12].

The biggest impact for the regulatory side is the introduction of the TPP's. These providers will now get the permission from the governments to either retrieve information from the banks, or to deliver transactions into the banks' systems, which they previous to PSD 2 would need the bank's permission to do. While PSD2 will have an impact in reduced entry barriers, it will in certain ways also benefit the existing players. *"...Vipps, can use the infrastructure for either expansion or for offering a better product to their existing customers"*[13] Nevertheless, PSD2 will create challenges for the banks. As of 2017 Bits and the Norwegian bank industry have created a joint project to evaluate the possibility for interoperability and technological solutions instead of each single bank creating its own solution for access to payment accounts, as this does not comply with the intention of PSD2[14].

"PSD2 has had, and will continue to have, a very important role to get the banks to think in new ways" [15]

" I think it provides a lot of opportunities, of course it also opens up the game for more, but again it is about ensure that what we have is attractive for both the consumer and the merchant,(..), and ensure that what we have is the most attractive in the market"[16]

[11] https://www.evry.com/no/media/artikler/psd2-the-directive-that-will-change-banking-as-we-know-it/
[12] https://www.bankid.no/globalassets/dokumenter/apne-sider/presentasjoner/3-brynjel-johnsen-bits.pdf
[13] Interview, Hans Henrik Hoffmeyer, Senior Vice President at Nets Group, 27.02.2017
[14] http://www.bits.no/psd2-bankenes-utfordringer-og-tilpasninger/
[15] Interview, Knut Anders Wangen, Head of MobilePay Norway, 2017 13.03.2017
[16] Interview, Jeanette Hertzum, Head of MobilePay business solutions and marketing at MobilePay, 27.02.2017

International competition

The current international presence in the Norwegian market is low. The introduction of PSD2 will most likely change the competitive landscape, where the global actors will find its way into the Norwegian market. Further, some of the possible competitors after PSD2 entrance will be introduced.

Google wallet and *Android Pay* is a splitting of the first version of Google Wallet which handled both in store and P2P transfers, whereas in 2017 Google wallet will handle P2P and the physical issued card, and Pay will handle in store, and eventually online purchases[17]. Another enhancement of the Android/Google app is that it no longer has to be paired up with a special phone operating company, but instead is built on Visa/ Mastercard. Android Pay has about 5 million users on a monthly basis. *Apple pay* was launched in October of 2014, and has about 12 million users on a monthly basis[18]. Apple was the first out of Apple, Android and Samsung to release a mobile payment function but is now getting fierce competition from the two others. *Facebook messenger* has also introduced P2P transfers through its already wide-spread app with an enormous user base. Facebook will here challenge Apple Pay, PayPal and other established actors in the market. Asia has also two big competitors that can be a big threat for the Norwegian mobile payment market. WeChat and AliPay have established themselves with a big user base and can be looking towards the Norwegian markets to enhance their already existing users, when they are travelling to Northern countries.

However, the Norwegian financial industry is not unanimous about which of the international competitors that is the biggest threat. Though, Apple is often mentioned in this discussion. Apple had for the first time in February a market value of 700 billion dollars and they have already entered in countries such as USA, Spain, France, Switzerland and the UK.
"It's no longer banks competing against banks. It was comfortable the time it lasted, but it has become very different"[19]

[17] http://www.androidcentral.com/whats-difference-between-android-pay-and-new-google-wallet

[18] https://www.fastcompany.com/3057353/apple-pay-leads-mobile-payments-with-12-million-monthly-users

[19] Secondary data, Rune Garborg, DNB/VIPPS, http://blogg.bisnode.no/psd2-og-apple-pay-til-norge.-hva-betyr-dette-for-norske-akt%C3%B8rer

New privacy regulation

The purpose of PSD2, together with the new EU- regulation "General Data Protection Regulation" (GDPR), is to enhance the rights of the consumers in respect to ensure their privacy. This regulation goes beyond just financial and bank specific regulations, but we will give an outline of the main points that comes with the combined regulations. If the rules, regulations and directives are not strict enough for the companies that handle the consumer's information, it can be a cause of concern. One privacy concern is that there is a big difference in European and American regulation on privacy matters. PSD2 and GDPR will ensure that these global companies that are not based in Europe, but operates within the EU will have to follow the new regulations as well[20].

"In relation to European consumer protection, it is a very big difference (between the countries). This also applies to the use of data,.., so I believe that these privacy laws that come in here are very important in maintaining the healthy principles we have here (in Norway)"[21]

Both PSD2 and GDPR are made in order to strengthen the rules concerning the privacy of personal data, and is constructed with that mandate. But as this directive and regulation has not taken effect yet, it is not possible to say if this is going to be the case in the more open market that PSD2 hope to cause.

Theory conclusion

Regulatory actors play critical roles in the designing rules that govern the functioning of markets (Kemp et al., 1988, 2001). One thing we know for sure is that the new regulations will change the dynamic between the competition and cooperation between the actors, as we have already seen. However, in todays' market it is difficult to know how the impact of PSD2 will be, we already know that PSD did not do what it was developed to do and being in a market with rapid changes there will take time for all the actors to facilitate the conditions for the new potential actors. In addition, regulation may induce the incumbent to pursue a

[20] https://www.datatilsynet.no/globalassets/global/planer-strategier-rapporter/tilstand-og-trender-2017.pdf
[21] Interview, Bjørn Skjelbred, Head of Mobile Payments at BankAxept, 09.03.2017

more aggressive strategy regarding innovation. However, it may well reduce the incentives of the incumbent firm to innovate by reducing the opportunities to extract benefits from its innovation. The self-regulation has provided an efficient payment system and given huge cost benefits. The balance between the self-regulation and regulations may be more difficult in the future and may hinder possible benefits for the Norwegian market.

4.3 Organizing

The decision of how to organize the mobile payment applications have had a big impact on the companies' strategies and which market position they have today. As mentioned in chapter 4.2, regulations can shift the competitive nature of a market. The development of the mobile payment apps started out as an individual project in order to get their respective mobile payment app quickly to the market. To be able to meet the regulatory changes, and the threat of international competitors, Vipps, MobilePay and mCash had to organize differently. The end result of this was that both Vipps and MobilePay, in 2017, invited other banks to join their solutions.

4.3.1 Outsider versus insider

The Norwegian bank system has for many years been highly interdependent, and have collaborated on many areas in order to achieve an effective system for both consumers and the banks itself. These relationships have also had an impact for the mobile payment apps. mCash has been the clear outsider compared to MobilePay and Vipps which has been developed by actors that were part of the bank system for many years prior to mobile payments. The effects of being inside or outside of the system has had different implications for the process and success of the mobile payment app.

The trust consumers have to a new solution can be highly dependent on the knowledge that they already have about the issuer or responsible part of the new product. Mobile payments are connected to the consumers' money, which can strengthen the concerns consumers have towards unknown companies. However, as this may be part of the case, there is not a clear consensus about the impact of the trust from the consumer.

mCash was the clear outsider in the case of mobile payments, as they were not a bank and the consumers had no prior relationship to the people behind the solution. This was part of the case as to why they did not have the exponential growth that both MobilePay and Vipps experienced when they launched its mobile payment apps.

"The consumers wanted to use this kind of product, but they were sceptical of mCash"[22]

DNB said that they had done analysis about why people did not use mCash, and found that they did not have the sufficient trust from the consumers. Vipps with DNB as the issuer, which has been the largest bank in Norway for several years benefitted amongst other things on its historical role as a large bank. In that way DNB and Vipps already had the trust affiliated with a serious actor in the financial market. At the same time, DNB got some critique for "copying" mCash which they had encountered on several occasions. mCash was one of the finalists in DNB´s innovation award in 2012, and had held several different talks at bank conferences. DNB said in 2015, that although they had met mCash, as all of the other banks in Norway also had, they always wanted to develop their own solutions, instead of buying from others[23].

Knut Anders Wangen, in MobilePay believes that the most important factor is that the product is good enough to attract consumers, and that this can overcome previous beliefs about the company behind it. In 2008/2009, Danske Bank experienced a loss in faith from the consumers. The financial crisis in 2008 was something that made the consumers distrust Danske Bank as a financial service provider. Jeanette Hertzum, in MobilePay Denmark, believes that the importance of trust is highly dependent of the age of the consumer.

"...Not the young ones, but the old ones prefer to and want to make sure that the ones handling anything regarding our money needs to be trustworthy and in that sense I believe that being part of a large bank plays a positive part"[24]

This trustworthiness is benefitting both DNB and MobilePay in the fight for the

[22] Interview, Thang Manh Tran, Head of Business Development at Vipps, 23.02.2017

[23] http://kampanje.com/tech/2015/07/vipps-og-dnb-skremmer-vettet-av-meg/

[24] Interview, Jeanette Hertzum, Head of MobilePay business solutions and marketing at MobilePay, 27.02.2017

consumer, and to win the mobile payment war as the consumer prefers the familiar and safe option.

The size of a corporation can have an impact on how the company approach potential consumers or business partners. The footprint a business leaves in the market landscape will affect which methods a company use in order to get their product to the market. As we know, mCash needed to approach other banks to raise the required capital in order to launch mCash. Daniel Döderlein explains that mCash already in 2010 and 2011 had meetings with the large Norwegian banks. All of the approached banks, shook their heads and wanted no part in mCash, which Döderlein believed was because mCash just was ahead of its time, and the banks did not see the potential[25]. In 2012, mCash had a few merchants ready to implement it as a payment solution. However, it would still take an additional two years before mCash and BN Bank was available for the consumer. It did not have the power and capital to launch a massive campaign and be present where the consumer likely would see the campaign.

Danske Bank in Denmark had a strong position, and is a well-known bank for many Danes. Knut Anders Wangen in MobilePay believes that to be the first and biggest will have an effect when you launch something new, but that the size is important for the building of a network. The relevant voice that you have in the medias and other relevant areas will contribute to the position that you get. Vipps, owned by DNB, had a massive marketing campaign when they launched. Vipps had a vast presence through TV commercials, advertising posters throughout the big cities in Norway and online. The campaign focused solely on the P2P payment, in contrast to mCash's dual focus on both P2P and in-store payments. This marketing campaign also became a topic in the critique of DNB's choice to create their own mobile payment app, instead of taking part in mCash. It is clear that the amount of marketing that Vipps had the first period surrounding the launch would not be possible for mCash, it would be too expensive for a small company to pursue.

[25] http://e24.no/boers-og-finans/sparebank1-kjoeper-norske-mcash/23542853

4.3.2 Operating as a single bank or consolidate

mCash started as an entrepreneurial idea in 2006 and the mCash name was established in 2010. The idea was that mCash could be distributed by banks that would cooperate with mCash, in a similar way that debit and credit cards are issued by the banks[26]. mCash continued to build its service with different sales points that would be included. In 2012, Bunnpris, Burger King, Peppes Pizza and a few more were already saying that they would offer mCash as a way of payment in their stores. However, without getting the banks onboard with the mCash solution, as well as lack of sufficient other financial support, they did not have the required capital to release the app. Just before release in 2014, mCash got a large investment of 43 million, which made it possible for them to launch together with BN Bank[27]. Little over a year later, Sparebank1 chose to buy the Norwegian part of mCash, along with the brand name which means they do not buy the company but the business of the company. The entrepreneur company will retain the technology and will focus on launching mobile payment internationally. In October 2015, Sparebank1, explained that they bought the mCash solution in order to stay competitive in the digital landscape and continue its focus on mobile payment solutions[28]. February 2017, the news broke that mCash becomes a part of a combined effort with Vipps, to be the number one mobile payment app in Norway. Elisabeth Haug, the CEO of mCash, said in 2017 that the reason for the consolidation was that more and more companies were working on getting into this segment[29].

MobilePay started as a joint project for all the Danish banks in 2012, in order to make money transfers between people more convenient. Jeanett Hertzum, in MobilePay Denmark, said that Danske Bank broke out of this collaboration because of two overall reasons. The first was regarding time to market. Getting everyone to agree, took out the agility of the development. The second reason, was that mobile payments had the potential to be a competitive advantage to come. This lead Danske Bank to break out of the cooperation and work on a

[26] https://www.tek.no/artikler/denne-appen-erstatter-bankkortet-ditt/117421
[27] https://www.tek.no/artikler/mcash-far-mer-cash/157189
[28] https://www.auka.io/about-auka/
[29] https://www.digi.no/artikler/mcash-er-dodt-leve-vipps/376488

mobile payment app on its own. After working as a single bank with the mobile payment app for six months, MobilePay was launched in May 2013 in Denmark. Some years later, in October of 2016, MobilePay sent out an open invitation to all the Nordic banks to work together on MobilePay. Knut Anders Wangen, in MobilePay Norway said that the first one to enter was Nordea, then all of the Danish banks, and then also Gjensidige joined the collaboration.

DNB started to work with Vipps in 2014, and the reason why they wanted to get into mobile payments was because they knew that international giants like Facebook and Google, as well as other Fintech companies wanted to get into the Norwegian market through payments[30]. DNB launched Vipps in May 2015 and quickly became the biggest mobile payment app. Vipps became the market leader for P2P payments due to a massive marketing campaign, and the term "Vippse" in order to transfer money became part of everyday life for many. As mentioned DNB and 106 other banks, consolidated around Vipps in February 2017.

The development of the competition around mobile payments has been that all of the biggest actors started to work alone before opening up for others and cooperate around a joint mobile payment solution. Time to market is an important part of this development. To take decisions in a large common project with a lot of different contributors can make the development process more complex and can inhibit the launch date. mCash was early to develop their solution, and on the development side had a head start on both MobilePay and Vipps in Norway.

Another part of the rationale for this cooperation was that PSD2 had become highly relevant, and in order to strengthen their position against international competition that will come in 2018. Another factor which played an important role in the consolidation between Vipps and mCash was the consumers. The consumers were experiencing a confusing market with several different products without interoperability. Along with this, both MobilePay and Vipps started their journey alone, during this study it has become clear that in order to meet the market and the international competition, the banks had to gather their resources

[30] Interview, Thang Manh Tran, Head of Business Development at Vipps, 23.02.2017

in order to be a united front.

"A product like MobilePay, can at best survive as a single-bank product a few years. But if you open up, build a platform together with more banks, then you are in a position to develop this platform into something bigger"[31]

The consolidation is also an important step to prepare for potential international competition and to build an efficient ecosystem. There is a lack of a precise definition of an ecosystem even though many authors discuss business ecosystems. One definition is that "*an ecosystem is a dynamic structure which consists of an interconnected population of organizations. These organizations can be small firms, large corporations, universities, research centers, public sector organizations, and other parties which influence the system*" (Peltoniemi & Vuori, 2004). The importance of building an ecosystem is crucial in order to create a cost-efficient and effective infrastructure. This coopetition means that MobilePay and Vipps will be competing in order to have the best platform, but will be cooperating with each other, and other companies, to find the best way of structuring a new payment infrastructure for both merchants and customers.

"We are experiencing a market where more and more companies are launching their own mobile payment solution. This may be confusing whether you have to pay or receive a payment. Even though we have managed to create a solid position with mCash, the customers have expressed that they prefer one solution- one strong and clear supplier. Therefore, Norwegian banks join forces to create a single mobile payment app for all Norwegian bank customers"[32]

"... all the banks that want can take part of the cooperation here. And this is of course to ensure that it is an infrastructure behind that is open to as many customers and businesses as possible because the more banks that are participating, the easier you can create a cost efficient infrastructure. Using the accounts and not cards, as payment infrastructure"[33]

[31] Interview, Knut Anders Wangen, Head of MobilePay Norway, 2017 13.03.2017
[32] https://www.digi.no/artikler/mcash-er-dodt-leve-vipps/376488, Finn Haugan, Konsernsjef i SpareBank 1 SMN
[33] Interview, Jeanette Hertzum, Head of MobilePay business solutions and marketing at MobilePay, 27.02.2017

Our findings indicate that the choices that affects how the different mobile payment apps were organized, is tied to the stage the market was in. Before the awareness of PSD2, the mobile payment apps all operated as a single bank which made the most sense at that time. However, after PSD2 organizing became more complex and what made sense a few months ago were no longer as beneficial. The increasing threat from international competition made it clear that the mobile payment apps had to organize across in order to be ready for the new potential competition.

4.3.3 Internal innovation focus and development methods

After inviting other banks to join the solution, in October 2016, MobilePay became a daughter company of Danske Bank, with 100% ownership of Danske Bank. MobilePay has become a Nordic company with a presence in Denmark, Finland and Norway, and IT- resources in Lithuania. The network of banks other than Danske Bank are used as distributors mainly on the business to business side, but also in order to get the customers of their respective banks to use MobilePay. The business development is as mentioned based in Denmark, with a Nordic focus.

The development of new features is done by a minimum viable solution, where time to market is a key driver.

"*We never launch a Rolls Royce, because time to market is key"*[34]

MobilePay launch new features and then build upon this version in order to get well-functioning solutions. In that way MobilePay tries to keep up or stay in front of the market, and not experience that the new features become irrelevant because of a long development time. In order to have relevant products, MobilePay co-create with their customers. The development team always has the customer in focus, but because of the fast development in the market, it is impossible to know everything prior to release, and with the help of its customer it can develop the product to be the best fit.

[34] Interview, Jeanette Hertzum, Head of MobilePay business solutions and marketing at MobilePay, 27.02.2017

As a result of the consolidation in 2017, Vipps is in an organizational limbo state. The process of moving from a business area in DNB, and to become a stock-based company together with 106 other banks is demanding. After the consolidation with mCash in February 2017, the new owner structure of Vipps is as follows: DNB (52%), Sparebank1-alliansen (25%), the independent banks (12%), Eika-gruppen (10%) and Sparebanken Møre (1%)[35]. This also depends on the merger of the two tech environments with people from mCash and Vipps.

In the decision making, Vipps has relied heavily on a governance structure which is a power structure whereby a small group of individuals are responsible for the running of that part of the organization, but are accountable to a wider group of individuals, often called shareholders or owners. This structure may be developed in different ways to fit the particular organization, but for DNB the structure was important because it made them agile enough to make sound decisions in a high tempo. Both Rune Bjerke and Rune Garborg, praises the employees in DNB for how positive they have been throughout the commitment DNB has had for Vipps, and that Vipps would never have had the same impact without the support of its employees.

"*The new future is that you have to organize in order to stay competitive and make rapid decisions*"[36]

When Vipps develop new features for the consumers, they operate with a minimum loveable product in order for the new features to be relevant. Design Thinking is therefore an important concept for DNB to succeed in the digital economy. Thang Manh Tran compared Vipps to the way Snapchat develops new features by constantly adding something new to the app that adds value for the consumer. Vipps started by introducing money transfers, and in that regard also the functionality to receive money, before they introduced a feature that made it possible to ask to receive money as well.

[35] http://www.hegnar.no/Nyheter/Boers-finans/2017/03/Vipps-faar-kjoepe-Mcash
[36] Interview, Thang Manh Tran, Head of Business Development at Vipps, 23.02.2017

"If you use two years on the development of a perfect solutions, this solution will no longer be relevant or useful for the customer"[37]

Theoretical discussion

The disruptor's dilemma, is that they risk retaliation from the incumbents, as well as it needs their support (Ansari et al, 2016). This dilemma fits well with the needs that mCash had when their app was ready to go out in the market. mCash needed support from the incumbent firms in order to have sufficient capital to launch. DNB chose to fight against mCash in the sense of creating their own solution- Vipps, and then became a big threat to mCash as they had more resources than the startup company to use in marketing, as well as DNB already had a connection and trust in the market of payments. The advantage of DNB has clearly been connected to the size of the organization, as this had made them available to gather a lot of resources behind Vipps.

4.4 Market

The presence of mobile payments in the Norwegian market has had an exponential growth since mCash launched in 2014. mCash, MobilePay and Vipps have much of the same applications, but has had some differences in focus and development. mCash started with a bigger focus on in-store payments in comparison to MobilePay and Vipps which added this possibility after the initial launch. The original idea was that mobile payment apps was something that would simplify money transfers between friends. Eventually, the different applications of the app developed from peer to peer payments to online, in-store payments, and in other applications such as the collective transportation app Ruter to make payment quick and easy.

4.4.1 Utilize both indirect and direct network effects

A central choice in the history of mCash, Vipps and MobilePay is that they all had Peer-to-Peer(P2P) transactions as part of their launch strategies. P2P has the

[37] Interview, Thang Manh Tran, Head of Business Development at Vipps, 23.02.2017

ambition to make transfer between friends more streamlined and easier.

When talking about mobile payment apps, their initial value was that they filled a gap for smaller money transfers between friends. The fulfilling of this previous uncovered need, was one of the reasons why these mobile payment apps gained a critical mass within short time. P2P through mobile payment apps requires the users to transfer money through the same app. There are as of 2017, no communication between the different apps. This means that money must be transferred from one Vipps account to another Vipps account.

Danske Bank and DNB had quite similar approaches to how they launched their app, especially by comparing how Danske Bank did it in Denmark and how DNB chose to do it in Norway. P2P made them able to benefit from the network effect when people started to use the mobile payment app and send money to friends, the person receiving the money would get a message that money had been sent to them, and in order to collect the money you needed to download the respective app. When mCash launched they were critiqued that the receiver of the money had to download the app in order to get the money, the skepticism may be linked to mCash not being a bank and the consequences from a lack of trust. Vipps and MobilePay enjoyed big success with the launch of their mobile payment apps through the focus of P2P- solutions.

"We fully utilized the network effects. When we launched the 30th of May, many of the DNB employees were already on the solution"[38].

To kickstart the network effects, DNB involved the employees. They utilized the strength and size of the organization by having a number of employees sending money to people they know, and using word of mouth together with the large marketing campaign that DNB had. In support of this, Hertzum is also a strong believer in the viral network effects that came with the P2P payments at the beginning.

"the viral effect and the fact that it was for everybody to sign up and get started are the key elements to growing so big in such a short time"[39]

[38] Interview, Thang Manh Tran, Head of Business Development at Vipps, 23.02.2017
[39] Interview, Jeanette Hertzum, Head of MobilePay business solutions and marketing at MobilePay, 27.02.2017

In-store payment are payments where you use your mobile payment app instead of your bank card or cash. With in-store payments the store needs to have a terminal that supports the given mobile payment app you wish to use. The terminals are equipped with *Near Field Communication* technology. This technology transfers small amounts of data from your phone over to the terminal when you put your phone near, or on, the terminal.

"mCash- isn't that the thing you use to pay at Burger King?"[40]

mCash chose to have both a P2P-solution and a P2M- solution when they launched in 2014. As mentioned in the Organization part, mCash had different merchants as their partners back in 2012. Although mCash had a head start on Vipps of about a year, they still got surpassed shortly after the entry of Vipps. Kjetil Holmefjord, manager of StartupLab, wrote in 2015 that he believed that this was due to the differences in marketing. In his view, mCash focused for the most part about the P2M payments with mCash, and in that way it did not seem as a breakthrough product such as Vipps did. That way they did not benefit in the same way as MobilePay and Vipps [41].

Since Vipps was the biggest winner in the P2P market, MobilePay targeted online stores. Surveys show that 7 out of 10 cancel their purchase in online stores, which has made the online stores more aware of efficient payment solutions in their check-outs. MobilePay had a goal to be available in thousand online stores by 2016. Their solution is not provided by MobilePay, but through different Payment Service Providers (PSP) such as Dibs and Netaxept. Vipps, on the other side, decided to go with a different strategy. They went directly to the biggest online stores and negotiated single agreements. Within online stores, Vipps and MobilePay will also meet solid competition from foreign payment giants like Klarna and Paypal, these solutions are familiar to Norwegians and have already an established relationship to these solutions[42].

The introduction of mobile payments through P2P was important in order to create an attention and gain a foothold in the market, so that they could continue

[40] Secondary data http://kjetilholmefjord.com/post/123018598419/vipps-vs-mcash
[41] http://kjetilholmefjord.com/post/123018598419/vipps-vs-mcash
[42] Kapital: Tidsskrift for næringsliv, børs og økonomisk politikk. Nr 14-25.august 2016. p 52-55

to build on that relationship and dialogue with the customer.

"Our goal was never to deliver P2P payments. The goal of P2P in itself is 1. Establish brand, 2. Establish product and 3. have a critical mass in order to deliver on bigger payments"[43]

P2P was only a part of the plans for mobile payment apps, and the utilization of network effects to get a critical mass for the other possibilities that mobile payment apps offer. Both MobilePay and Vipps develops their solution by building the apps stone by stone, and in that way ensure that they have a customer base they reach when new features are introduced. An important part of the successful launch is that the mobile payment apps are a multi-sided platform. These platforms have to gain users both by end user, but also by merchants or online stores to be successful. In that way, the value of the mobile payment app increases with the number of users that it gets, and if a critical mass is not obtained it will not give the desired effect.

"... It is the same with Vipps, those who are on the outside can neither send or receive money- while those who are on the inside can both send and receive, in a simple and user friendly way"[44]

P2P had the strong effect on consumer attraction because of the simplicity of the transactions. The emphasis in order to get more people attracted to the full solutions, is that simplicity continues to be the main focus. In order for consumers to use mobile payment apps instead of their plastic cards, or for invoice payments, is that it has to be viewed as a simpler way than what already exists. As a multi-sided platform it is important to attract both merchants/websites as well as the end consumer to be successful.

4.4.2 Customer interface will help shape the future mobile payment apps

In a podcast from February 2017 by Dagens Næringsliv, CEO of Vipps Rune Garborg, explains that invoice payments, to check balances and other account information make up 70-80% of the activity of online bank services[45]. Further, he explains that through PSD2 and the open scenario that comes with it, makes it

[43] Interview, Thang Manh Tran, Head of Business Development at Vipps, 23.02.2017
[44] Interview, Thang Manh Tran, Head of Business Development at Vipps, 23.02.2017
[45] https://www.dn.no/nyheter/2017/02/15/1720/Podkast/-dette-vil-vaere-krevende-for-vipps

possible for TPP's to compete for these activities. In that sense, Vipps and MobilePay, is a way for the banks to continue to have the dialogue with the consumer, and to compete against TPP's and other banks. This is important because the company gain a lot of data about their customers that can be used in targeted marketing.

"Vipps is a gateway to something more than just payments, both the customer relations to the private and business market, as well as it gives you access to data"[46]

Garborg talked about how Vipps was surprised by the feedback from the consumer regarding the chat function in the app. Consumers continued to talk about the experience relating to the payment. The experience regarding payments was more important than Vipps first realized, and want to further develop the chat function in order to share pictures as well as text. This can be a way to use the interface towards the consumer to ensure that consumers will continue to use the solution also after TPP's are part of the market.

"*I think that the customer interface will become extremely important in order to have the dialogue with the consumer, because this will give you more maneuver room to attract new businesses and create that ecosystem"*[47]

Wangen believes that the competition surrounding mobile payments in 2017, will move away from the P2P payments and over to the P2M bot in-store and online. In his view MobilePay has to think of themselves more like PayPal to make sure that they are present where it is relevant for the consumers to use a mobile payment service.

Theoretical discussion

The mobile payment apps where highly dependent upon the viral effects of the multi-sided platforms. The development has been that P2P was the most important factor in order to benefit from the network effects of mobile payment apps, instead of the dual focus that mCash had with both P2M and P2P. The direct network effects that comes from same-side effect, proved to be the most beneficial

[46] Interview, Thang Manh Tran, Head of Business Development at Vipps, 23.02.2017
[47] Interview, Jeanette Hertzum, Head of MobilePay business solutions and marketing at MobilePay, 27.02.2017

way of going after the solution (Gawer, 2014). Caillaud and Jullien (2003) talks about the chicken and egg problem of building a multi-sided platform, where you are in need of a critical mass of consumers on both sides of the market, and they both are dependent on users from the other side of the market. This was the crucial step of gaining support around the different payment apps, but with the open market after PSD2, a broader perspective and greater focus on indirect network effects will become important in order to attract users on both sides (Gawer, 2014).

4.5 Infrastructure

The last factor is the extent of the existing banking and electronic payment infrastructure, the degree of adopting the mobile payments apps may be constrained by the extent of available infrastructure. The banks in Norway have always used the same infrastructure, the same "highway" to get the money from a to b whereas the competition has been on providing different payment services. The payment system has the last couple of years developed rapidly, changes and innovation are driven by new technology, new players and regulations, which makes it difficult to develop a joint infrastructure fast enough[48]. Infrastructure is a huge part of Vipps, mCash and MobilePay, the infrastructure is the foundation of the innovation and contributes to smooth and simple transactions. Further the infrastructure builds on a long-lasting ecosystem and being outside of this ecosystem and infrastructure may be difficult for the innovation as the actors work together which probably will benefit the mobile payment apps.

4.5.1 World leading infrastructure

Individuals and companies use payment cards, online banking and mobile phones when making payments. Behind these payments lies a comprehensive infrastructure. The infrastructure will ensure that banks can offer payment services that allow customers to do transactions between themselves regardless of the bank connection. This means that if you are a DNB customer you can make payments to a person who is a Danske Bank customer without any problems. Even though Norway is a small country with few consumers, the

[48] http://www.bits.no/betalingskrigen-i-kapital/

cooperation to develop a joint infrastructure in the financial industry has led Norway to be one of the world's most effective and cost efficient infrastructures. The banks in Norway have developed one set of rules and systems for money transferring from account to account whether it is from a card or a giro. The payment structure is open, transparent and available for all agents with a license from the Norwegian government[49].

The joint infrastructure consists of different subareas[50]. One part involves common policy, agreement and regulations as well as the common standards and specific rules related to the use of the standards. The other part is connected to the systems and procedures for clearing. The banking industry's common interbank system is Norwegian Interbank Clearing System (NICS) and forms the core of the payment service. Because of the interoperability the banks transfer money between themselves, these transfers take place in interbank systems. The final transfer of money between the banks is ultimately through the banks´ accounts in Norges Bank[51].

As previously mentioned, the infrastructure is maintained and further developed by the bank industry itself through self-regulation. Within the infrastructure there are several agents involved; Norges Bank, Finans Norge, Bits, Nets and BankAxept as well as the Norwegian banks. Nets and BankAxept are the two agents who have had a direct impact on the banks´ strategy and decisions when it comes to mobile payment apps.

NETS

Nets forms the backbone of the Nordic payment ecosystem with solutions involving people´s everyday life. Nets connects banks, businesses, the public sector, merchants and consumers through an international network facilitating digital payments[52].

Nets offers a range of standard and customized end-to-end IT- solutions, as well as services within payment cards, bank account services, and payment solutions for merchants. They have for several decades contributed in developing a modern

[49] http://www.dn.no/meninger/2017/02/22/2044/Innlegg/felles-betalingsinfrastruktur-er-apen
[50] **https://www.finansnorge.no/contentassets/bf2b3557ee084ea6aca6cd9fcfdc55e0/samarbeid-om-den-felles-infrastruktur-pr-27.09.06.pdf**
[51] https://www.finansnorge.no/tema/bank/betalingsformidling/
[52] https://www.nets.eu/Pages/Who-we-are.aspx

payment infrastructure and have introduced successful payment products such as BankID, Avtalegiro and BankAxept[53].

BankAxept

BankAxept is the national payment system in Norway. BankAxept can be used in physical commerce in which payment is approved by the issuing bank when using the chip and the cardholder's personal code. About eight out of ten card payments in stores are performed with a BankAxept card. BankAxept focus on developing new payment solutions in new channels. This includes, development of contactless payment on cards and mobile devices, online payment and instant payments[54].

BankAxept is owned by the banks in Norway. The decision of a joint operational infrastructure (FOI) was made in 1991, which made it possible to coordinate the systems of all Norwegian banks and establish, through Bankaxept, a common electronic payment solution (EFTPOS). The purpose of a joint operational infrastructure was to secure that banks can provide payment services which allows customers to transfer money between accounts, regardless of which bank the account is affiliated with. Furthermore, the infrastructure would ensure an adequate coordination between banks which makes it possible to process transfers in line with customer's requirements[55]. Norwegian debit cards are issued with both BankAxept and the international solutions Visa and/or Mastercard. When the discussion about mobile payments started to emerge during 2014, many were worried that the usage of international schemes would increase prices of certain products because they would meet higher clearing cost per transaction. The approximate cost for clearing through a card and terminal with BankAxept is 3 NOK, while Visa charges on average 13 NOK for each transaction[56].

The number of transactions using Bankaxept in 2016 came to 1 595 millions, with an increase from 2015 on 4.5 percent. In comparison, international cards had 573 million transactions in Norway[57].

[53] https://www.nets.eu/Pages/Who-we-are.aspx
[54] https://bankaxept.no/om-oss/
[55] https://www.finansnorge.no/contentassets/bf2b3557ee084ea6aca6cd9fcfdc55e0/sa
[56] https://www.aftenposten.no/okonomi/i/wlQL4/Et-vipps-koster-samfunnet-13-kroner
[57] http://static.norges-bank.no/contentassets/b633cbc4154540abab705d622eefe52f/nb_papers_2_2017.pdf?v=05/16/2017163636&ft=.pdf

4.5.2 The mobile payment apps strategy and decisions about the infrastructure

Nets have been a solution provider for both MobilePay and Vipps from early on. The apps were built on existing infrastructure that Nets is providing. When you put the card in the payment terminal and perform a transaction, Nets is responsible for the actual transaction between the terminal and the bank[58]. The involvement from Nets has therefore been natural for MobilePay and Vipps. In addition, they both have an agreement with Nets that allows you to shop online with your mobile phone application through the solution Netaxept. mCash on the other side decided to work outside of Nets solutions when they launched.

"The secret of mCash is to go outside of Nets"[59]

It is important to remember that mCash was a start- up company and therefore had a different starting point than the banks. mCash was already outside of the ecosystem and was not part of building the joint infrastructure. However, Döderlein explained that they spent a lot of time analyzing how the infrastructure worked, and looked at who was the loser and the winner in the supply chain. Their main focus was to make it easy for the consumer.

"We lifted the transaction outside of the sales register and "posted" it directly into the bank. In other words, we have made our own pipe, a pipe that goes into "the cloud"[60]

The cloud is a metaphor for the internet, it is a word that one use to explain that the work is stored on servers "somewhere out there". The last couple of years the cloud has been more and more used for different purposes, the technology is so well developed that it is easier to use the internet than to download it on your own computer/phone.

The underlying scheme for all of the three mobile payment apps are similarly built on the international payment cards Visa and Mastercard, instead of the common infrastructural payment method of BankAxept. However, for mCash

[58] http://e24.no/privat/penger/denn#e-appen-erstatter-bankkortet-ditt/20341985
[59] Secondary data, Daniel Doderlein, founder of mCash, http://e24.no/privat/penger/denne-appen-erstatter-bankkortet-ditt/20341985
[60] Secondary data, Daniel Doderlein, founder of mCash, http://e24.no/privat/penger/denne-appen-erstatter-bankkortet-ditt/20341985

there was another feature/possibility for the consumers that had a bank accountant in BN Bank. The customers could pay directly through their bank accounts, which means lower transaction cost for both merchants and the bank. Both MobilePay and Vipps legitimize their strategy of Visa/Mastercard by the fact that BankAxept was not ready to be implemented in their solutions, and in that way, the banks had to choose between a short time-to-market or cost efficiency. The former became the dominant factor and all of them continued their development without BankAxept. The industry is experiencing that the pace of innovation is so fast that it is difficult to develop a joint infrastructure fast enough. The infrastructure was a barrier for the companies to meet the market at the right time. Even though the infrastructure in Norway can be considered as one of the most cost-efficient in the world, both Vipps and MobilePay decided to launch their apps outside of this infrastructure.

"To get everyone onboard at first could be tough, and in this situation we are talking about time to market, they already had some underlying technology with Visa/Mastercard and it was definitely the most beneficial thing to do at that time"[61]

"The competition is going to be though and fast, Vipps was born before that solution existed and Vipps was therefore based on what was available of infrastructure"[62]

Further, we see that both mobile payment applications are moving towards a joint infrastructure also within mobile payment. DNB made it clear that they wanted to base their transactions on the national payment scheme BankAxept and leave the international concept of Visa/Mastercard. The benefits of being a part of a joint infrastructure is substantial, the most discussed benefit is cost reduction. *"We are supporters of competition towards the customers and cooperation on the infrastructure"*[63]. The banks have several times pointed out that a cost-efficient infrastructure is important for them. BankAxept provides control, a lower price and good settlement mechanism. Another challenge is the

[61] Interview, Bjørn Skjelbred, Head of Mobile Payments at BankAxept, 09.03.2017

[62] https://www.dn.no/nyheter/2016/11/16/1102/Podcast/podkast-kampen-om-mobil-lommeboken (09:50)

[63] https://www.dn.no/nyheter/2016/11/16/1102/Podcast/podkast-kampen-om-mobil-lommeboken Even Westerveld DNB

lack of communication between the applications, also known as interoperability. The fact that one cannot transfer money from Vipps to MobilePay makes it difficult for the customer, the solution is a joint solution.

"*Creating an infrastructure for all agents is more efficient, reduce unit cost significantly and it has been the success story of the Norwegian payment services over the years. A common infrastructure where all banks and other agents who have the right to offer payment services can use is important*" [64]

"*... to be very cost efficient and thereby competitive so we can get a lot of merchants onboarded and a lot of consumer to use it, so that we can create an ecosystem where it is easy for you as a consumer to pay both to friends and to merchants and for merchants to receive payments from users*"[65]

In spite of a more challenging cooperation climate, the industry agrees on a higher level that one wishes to standardize where it is appropriate, for example, by using mobile payment solutions in stores. In addition, it is a natural process that the industry will gravitate towards a more cost-effective solution when these are in place. If the industry fragments the infrastructure, the risk of being eaten by large international agents increase, which is not a desired situation if the industry wants to maintain an equally user-friendly, inexpensive, efficient and secure payment system that the nation is currently benefiting from.

The retail industry did not like the development of different banks presenting different mobile payment apps, they were concerned that there would be chaos in the stores. In 2016 the company Retail Payment was launched, as Coop and NorgesGruppen decided to co-operate and control the development of payment in their stores[66]. "R*etail Payment became a topic because they are concerned that the current situation will lead to fragmentation. The retail industry is familiar with Bankaxept...and are now afraid that the situation with several different mobile payment systems will lead to a need of different terminals at the counter which will be chaotic for the stores*"[67]. Retail Payment quickly got supporters such as Rema, Umoe restaurants and other small companies. The

[64] Interview, Jan Digranes, Director of Finans Norge, 01.03.2017
[65] Interview, Jeanette Hertzum, Head of MobilePay business solutions and marketing at MobilePay, 27.02.2017
[66] http://www.dn.no/etterBors/2016/06/09/2142/Teknologi/vil-tvinge-bankene-til--samarbeide
[67] Interview, Jan Digranes, Director of Finans Norge, 01.03.2017

companies account for 50 percent of all card purchases in stores in Norway.

Retail Payment made it clear early on that they prefer Bankaxept and view it as the most cost efficient solution in the world. Their positive remarks towards Bankaxept is an important factor in the banks` decision for a joint infrastructure.

"*There is a risk that milk, bread and coca cola becomes more expensive Without a joint infrastructure*"[68]

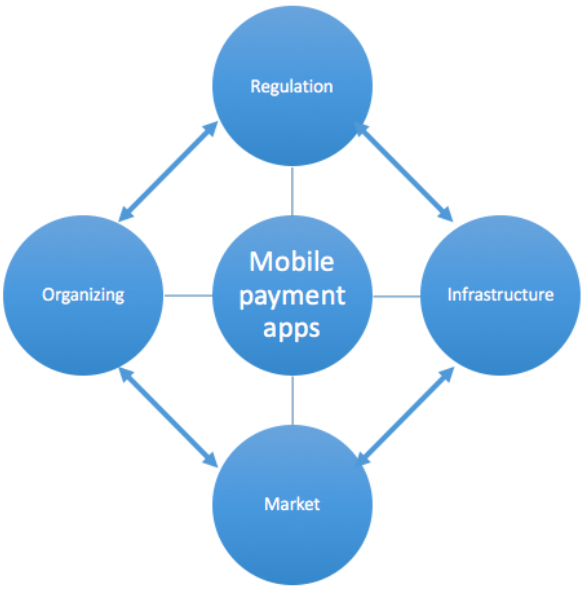
When paying with credit card the stores pay a lot of the bill. According to Norges Bank, in 2013 Norwegian stores paid over two billion kroner to the banks in fees for customers using international cards, compared to only 173 millions for Bankaxept, despite the fact that far more payments went through Bankaxept. If the international cards take over the cost allocation will change drastically, and in finally the end user will be the one who pays[69].

Theoretical discussion

Assink (2006), introduces the infrastructural barrier and explain how disruptive innovations often lack the necessary infrastructure or may be too underdeveloped to be easily integrated. All the applications decided to go outside of the national infrastructure Bankaxept, however both MobilePay and DNB had co-operation with the infrastructure company Nets. The results support Assink´s view on how the disruptive innovation, mobile payment apps, experienced an infrastructure that was underdeveloped and not ready for the innovation. The infrastructure would have delayed the launch of the mobile payment apps if they were to wait for the finished national results, however the barrier was not that big in form of the launch it was rather a discussion about cost, time to market and cooperation. Walsh and Linton (2000), argue that infrastructure can be decided into a "upstream" and a "downstream" component. The upstream is linked to technical newness of the radical innovation, this can be missing standards and processes. The downstream component refers to the market side, such as available distribution channels, alliances, market acceptance and external infrastructure. The findings show how the banks have "rested" on the well- functioning infrastructure, we therefore have a different view than the existing theory. In this

[68] Secondary data, Hans Petter Hoel, Retail Payment, http://www.dn.no/etterBors/2016/06/09/2142/Teknologi/vil-tvinge-bankene-til--samarbeide
[69] http://static.norges-bank.no/contentassets/c6ed2ec861034f47afb5ea233363a5d3/norges_bank_memo_5_2014.pdf

particular case, the national infrastructure was not well enough developed and therefore the applications needed to explore international infrastructure. The national infrastructure did not necessarily lack the technology but they did not see the disruptive innovation before it was already in the market. In addition, developing a national infrastructure takes time and time was of the essence for the applications. Luckily, Norway already has a well- functioning infrastructure and in a way, we can say that the infrastructure was more of a bump in the road since as of now the different agents are working towards a joint solution.



Mobile payment framework

5.0 DISCUSSION

This research focused on the three then existing mobile payment applications, Vipps, mCash and MobilePay and how these disruptive innovations have to navigate through the ecosystem in order to succeed. This ecosystem has favored the incumbents in certain ways that we wish to distinguish further in this part. Our findings suggest that the Norwegian bank industry have relied heavily on developing a well- functioning ecosystem, further the findings shows that regulations have taken a bigger part of this ecosystem and will in the future shape and change the dynamics between the actors in the ecosystem. Although the changes from PSD2 are yet to be discovered as it will be in effect from 2018, we have seen through our study that the most likely scenario is a greater competition in the Norwegian market as PSD2 opens up to for both national and international TPP's. We have found that the regulatory involvement has in some way caused two different markets, as it started as a closed venture for several single-actor initiatives, and later have developed into a collaborative effort of a more consolidated market.

5.1 Are mobile payment apps a disruptive innovation?

There is a dispute as to whether the Norwegian mobile payment apps are disruptive or not. If we look at the definition from Christensen (1997, p 150) it says that ''disruptive technologies are typically simpler, cheaper, and more reliable and convenient than established technologies''. One of the reasons why it can be difficult to address whether the mobile payment apps are disruptive, is that they have different areas of use. It will also depend on some definitions of simplicity and cost. For the P2P part, it is free to use all of the apps, and simpler than to use online banking to transfer money. We would argue that from the definition of Christensen, mobile payment apps can be regarded as a disruptive innovation. For in-store and P2M, it is a bit more difficult. The Norwegian payment system is highly efficient, both in regards to cost as well as use. That way it may not be simpler, and for merchants and the banks it is not cheaper to

use payment apps because of Visa/Mastercard's fee structure, which in turn can make it more expensive for the consumer.

The term, disruptive innovation, has been criticized for being vague and it therefore can be difficult to map an innovation as either sustaining or disruptive. Schmidt and Druehl (2008) wished to aid managers in mapping an innovation by the encroachment framework, where you have either low- end or high-end encroachment. Typically, a disruptive innovation starts with low-end encroachment, as it is focused on the low-end consumers. Mobile payment apps, did this by going for small transfers, and payment. Payments are not a lucrative part of the banking industry, and little money were gained initially by the mobile payment apps. Eventually the mobile payment apps have added features that replaces giros, in-store payments and more, and has in that way moved away from a small niche, to a bigger market.

Mobile payment apps are open to everyone, and does not restrict the user based on the bank affiliation they have. Therefore, mobile payment apps can be a way to get a relationship with consumers outside of the original customers of the bank. Even though this is the potential of mobile payment apps, we cannot state with an absolute certainty that mobile payment apps will be a disruptive innovation for all the markets that they are looking to go into. One reason for this, as pointed out by Danneels (2004) is that disruptive innovations are often labeled disruptive innovations, ex post and not ex ante.

During our study of the Norwegian mobile payment market, we have found that it has had a great impact and has multiple applications. Mobile payment apps are cheap for consumers to use, it has the potential to substantially change the way we conduct payments, both in- store transactions and different money transfers. Following Christensen's definition (1997, p 150) and the encroachment theory of Schmidt and Druehl (2008) mobile payment apps have the characteristics of a disruptive innovation. Although the three mobile payment apps can be given the same definition as a disruptive innovation, our findings suggest that the innovation needs other capabilities in order to become a successful innovation, and to win the market.

5.2 Overcoming the "Incumbent's curse"

In the Norwegian market for mobile payment apps, today's winner is Vipps, with DNB as the incumbent firm. This is in contrast with Christensen and Raynor's (2003) view that the new entrant often is the winner of disruptive markets. But there are exemptions to this rule, or curse. Incumbent firms, that for various reasons have managed to overcome the hurdles that is related to incumbent firms. Sandström et al (2009), found in their case study that the resources that an incumbent firm has available will be very important for its capabilities to respond to a disruptive innovation. When revising the findings of our study it is evident that it was important for both Vipps and MobilePay to work as separate parts of respectively DNB and Danske Bank. Although they were structured as business units within their corporate umbrella, they had the opportunity to work without many delays, and with a lot of support from the management. Christensen & Raynor (2003, p 113) wrote that in order to meet a disruptive innovation, top-level support is needed in order to facilitate the creation of a new business unit to work on the new project. The reason for this was that by gaining top- level support early on, one also get more resources and by creating a new business unit the project is viewed as an opportunity instead of a threat. Markides and Charitou (2004) explains that by a dual business model you are likely to not have cannibalization between the parent company and the new one, but you will also miss out on potential synergies that could have been without the new business unit.

Sandström et al (2009) showed that being a large incumbent firm, can make the corporation far more likely to be able to fight against a disruption. In our case Vipps had the clear advantage over mCash, related to firm size and resources. DNB, as one of the largest banks in Norway, had vast resources to help the successful launch of Vipps. We have seen that this was relevant for different areas, but probably most relevant for the marketing campaign. This, as we have mentioned earlier, was something that is way beyond what mCash had the ability to do. Although new entrants are the responsible part for the disruptive innovation, it is often latecomers that eventually grow the market from a niche to a mass-market. This is due to the fact that the latecomers come in just before there has become a dominant design and it is possible to steal consumers away from the

disruptor (Markides, 2006). One of the ways that Vipps did this was by the concentrated focus on P2P payments, in contrast to mCash's dual scope, which helped Vipps take a large market share away from mCash. The two-sided nature of the mobile payment apps give way for two different network effects; direct and indirect. In the initial state, the mobile apps focused on the direct effects by building same-side effects of P2P payments. Same-side networks effects means that the consumers gain value as the number of user increases (Gawer, 2014). These network effects, can potentially weaken the curse as the incumbent firms have a different set of capabilities, that can make it easier for them to benefit from network effects.

In support of this, Chandy and Tellis (2000) points to three market capabilities that can give the incumbents possibilities to win with disruptive innovations- customer knowledge, customer franchise and market power. The knowledge that an incumbent firm has about its customer, makes them more capable to highlight the value of the disruptive innovation, and market them in a way that makes sense to the customer. Again, returning to the market campaign of Vipps in Norway, our study points to the overlooked possibilities that mCash had, and the success Vipps met with its mere focus on P2P payments as the only feature. The second part, is about the uncertainty that a consumer faces when trying out a disruptive innovation. To be a familiar part of the market, can provide the consumers with some comfort. This goes back to the point that Tran made in our interview, about how consumers were not familiar with mCash, which in turn made them skeptical towards their mobile payment app[70]. The last point of Chandy and Tellis (2000) is about market power, which they believe is important for two reasons. It gives them access to more distribution channels and it will give the possibility to sustain through the period of losses in the initial face. We know from our research that it is only now in 2017, that Vipps has the potential to be profitable as it has built in more features that creates revenues, as the P2P payments created only losses.

Observations from our study highlights the capabilities of incumbents and the strong benefits of network effects as a way of overcoming the incumbents curse.

[70] Interview, Thang Manh Tran, Head of Business Development at Vipps, 23.02.2017

If the disruptive nature alone, was the only factor in order to achieve success, mCash would be proclaimed as the market leader of mobile payment apps. However, with mCash being the outsider, they faced a disruptors dilemma where they could not outcompete the benefits the incumbents experienced from network effects and historic market power.

5.3 The development of the ecosystem

Garud and Karnøe (2003) presents a framework on how agents are connected in the emergence of a new technology- which includes designers & producers, users, evaluators and regulators. Although the framework includes the regulators in the ecosystem, the authors and the literature itself, fails to emphasize the importance of regulation. Regulation is viewed as something that the technological artifact has to account for and cannot do much about, which is true if the regulation in itself is well functioning. When mCash launched in 2014, the European regulatory directive, PSD, was in effect. After PSD was adopted in 2007, there has been a development of different payment services. The new service providers increased the competition and accelerated innovation, with new and cheaper alternatives for internet payments. The problem with the new service providers was that they were not regulated by the scope of PSD, and therefore a revision was necessary for a level playing field[71]. Since the directive was not broad enough to include all of the different actors that would be entering the financial industry, our findings show that the banks both in general and in the Norwegian market, managed to lobby themselves out of the intended effects of PSD. The low impact of PSD, also strengthen the self-regulation of the ecosystem by allowing the Norwegian banks to govern themselves. In line with our findings and the framework of Garud and Karnøe (2003) we argue that the Norwegian ecosystem of mobile payment involved three main areas instead of direct actors, where the areas are: infrastructure, organizing and the market with different agents within each area.

Ansari et al (2016), encourages other researchers to look at the characteristics of the ecosystem in other research settings, in order to get more robust insights of ecosystems. We found in our study that the historical nature of the bank's

[71] http://europa.eu/rapid/press-release_MEMO-15-5793_en.htm?locale=en

ecosystem is that it is a closed ecosystem where the different actors have contributed to a highly efficient infrastructure through governing a self-regulation. To disrupt a market that has a closed incumbent ecosystem, makes it harder for the disruptor to gain access and to cooperate with the incumbents. mCash experienced that it was hard to gain access, and as Ansari et al (2016) mentions, it is important to gain the support of the ecosystem that the new entrant wish to disrupt. Although the ecosystem can be a good way of fighting against the disruptor, it can also be an inhibitor for the incumbent and their work on innovation. Marnix Assink (2006), have identified different clusters of interrelated and partly- independent inhibitors which he believes negatively affect an organization's disruptive innovation capability. Building on Assink´s idea our findings have identified that the self-regulation can both stimulate and hinder innovation. It is clear that the self-regulation has given the banks the appropriate freedom to govern themselves, innovate and cooperate for a joint infrastructure, which in turn has lowered costs and contributed to a highly efficient payment clearing infrastructure in Norway. Self-regulation has been an integral part as to why the payment systems have worked well in the Norwegian market, but as our findings show it has also been an inhibitor for innovation, because in the long run the self-regulation only contributed to sustainable innovation which eventually has flattened out and given a state of satisfaction amongst the agents in the ecosystem. This can also be linked to the learning traps by Ahuja and Lampert (2001), especially the familiar trap, where the actors favor the familiar over the unfamiliar. Another inhibitor is the infrastructural barrier. The infrastructure has been a closed system only available for approved actors which have worked well for the existing players, and has been one of the reasons why the bank industry has failed to develop disruptive innovations. As Assink (2006) argues, disruptive innovation often lacks the necessary infrastructure or it may be underdeveloped. We see that this was also the case for the disruptive innovations, MobilePay, Vipps and mCash all had to build their solutions on the scheme from Visa/Mastercard instead of the existing infrastructure surrounding BankAxept, which in turn made the clearing cost for each transaction more expensive. We see a clear correlation between self-regulation and infrastructure as to why the infrastructure were not ready when the innovations were launched.

As an outsider, mCash struggled to develop a relationship with both the incumbents and the consumer. The lack of trust from multiple actors in the ecosystem, made it difficult for mCash to communicate the value mCash could contribute to both the banks and the consumers. As a startup company it was crucial for mCash to bring in others from inside the ecosystem to develop their solution and brand further. The importance of a disruptor to create a set of rules, relationships and interdependencies of the already established incumbents in the ecosystem, and how this is exacerbated in a multi- sided platform (Ansari et al ,2016). Assink (2006) also mentions the mindset barrier. Our findings show that none of the Norwegian banks were interested in mobile payment in 2010/2011, they were not able to "unlearn" and eliminate old logic and substitute it with something completely new. We believe that the reason behind this is that the Norwegian banks have experienced a situation with limited threats and competition.

Further, the benefits of being part of the ecosystem is also clear when it comes to the organizing area. The disruptor's dilemma concerns the support of the existing ecosystem that they seek to disrupt (Ansari et al, 2016). The initial nature of the mobile payment market, was a stand-alone competition where all of the mobile payment apps fought for the market leader position. PSD2 was yet to be introduced and the competitive arena was only between the Norwegian actors, and the focus was not on the international threats. In some cases, being a first mover could give advantages for the firm, however for any given firm the question of whether early or later entry is more advantageous depends on the company's characteristics (Montgomery, 1988). When Sparebank1 bought mCash, the situation of being an outsider changed, and in some way broke the disruptors dilemma for mCash. However, our findings show that the partnership of mCash and Sparebank1 happened too late for it to be truly beneficial, since the incumbent ecosystem already had used its strong market power and network effects to obtain a large user base that mCash did not achieve to win back. Our research suggests that the complex and closed ecosystem disadvantaged mCash as the first mover, where they did not manage to develop a critical mass when launching through a small and unfamiliar bank.

5.4 The regulatory impact on the ecosystem

Returning to the framework of Garud and Karnøe (2003), our findings suggest that regulation will have a greater impact on the ecosystem around mobile payment apps, and in turn change the nature of the ecosystem. The banks and its infrastructure is forced to open up to new agents which again may change the existing dynamic we see today. Before PSD2, the characteristics of the Norwegian market was the self-regulated market situation with a history of a cooperative and joint infrastructure, the mobile payment market was at the start a single-actor effort. Although the revision of PSD started in 2012, it does not seem like the Norwegian banks have been particularly interested or worried about the possible implications of PSD2. The regulatory changes have, however, altered the interactions in the ecosystem, as the more open nature will bring with it other possibilities for how innovation will take place within the ecosystem. Through our research of secondary data, it is as late as the fall of 2016 that PSD2 was something that all the banks were talking about and had a central part of the strategic work of the Norwegian banks.

PSD2 opened up for an imminent threat from international actors, such as Facebook and Google, among other smaller TPP's, which forced the mobile payment apps to rethink how they were organized. The first decision was to shift from an organizational structure where the mobile payment apps where business units within the company to form Vipps and MobilePay as independent companies. The second decision was that both MobilePay and Vipps opened up their companies for other banks to join in as distribution partners. The consolidation will make Vipps and MobilePay stronger in the competition against international actors, as well as it can make the coopetition between the companies easier. We can therefore argue that regulation can have big effects on a company's strategic choices as it completely changes the characteristics of the Norwegian market and democratizes the previous incumbent- heavy market power. Most of the agents we have talked to believe that the changes from the directive is positive, not only for the consumer but also for the agents in the ecosystem. They point to how it will contribute to stronger competition and more focus on innovation. This is in contrast with Blind et al's (2017) view, that regulation has a

negative impact on innovation in highly uncertain markets. They find in their study that formal standards have a more positive guiding effect than a negative cost creating effect on innovation. A possible explanation of this contrast, is that in many ways mobile payment solutions are heavily linked to the banking industry with a large degree of maturity and a low degree of innovation, which in turn makes regulation to be beneficial for the incumbent actors as they want to fight against the new entrants in the market.

PSD2 has also affected how the mobile payment apps utilize the network effects, as it moves away from direct effects and focuses more on the indirect effects, and how to best build the multi-sided platform. Because of the viral effects, Vipps experienced an exponential growth in users in a short amount of time, as did MobilePay in Denmark. Our findings suggest that this is due to the fact that MobilePay and Vipps, only offered P2P payment, where mCash had both P2P and P2M ready in their portfolio. The chicken and egg- problem (Calliaud & Jullien, 2003) of building a multi-sided platform became clear in mCash's case, as they did not obtain a critical mass on the consumer side and eventually integrated with Vipps to join forces. In the current market where PSD is the active regulative, the direct network effects have been the most important effect in order to achieve a large market share. But the market for P2P payments have stalled to some degree and is no longer as crucial as in the beginning. In line with our findings we see that the mobile payment solutions are in 2017 working towards a more complete business model, the indirect network effect becomes important in order to get the mobile payment apps on the most amount of retail and online sites. In order to build both sides of the markets, the mobile payment solutions need to find the appropriate method to do so. The chicken and egg scenario once again becomes important, as the retailer's decision on who to choose will depend on the number of consumers that the mobile payment app has in their user base (Gawer, 2014; Caillaud & Jullien, 2003). Vipps initially chose to charge a transaction fee of 1 NOK per transaction when they launched, but had to remove this when MobilePay entered the Norwegian market without transaction fees. This can be seen as a subsidy from Vipps and MobilePay, as they have to pay for the transaction to Visa/Mastercard. Caillaud and Jullien (2003) find in their study that the most

beneficial way of building a multi-sided platform is to divide and conquer, where you subsidize one side and hope to regain the losses on the other. The authors point to that in an open market, without a monopoly situation, this becomes harder to do. Similarities can be found when the mobile payment apps, seek to develop the P2M side as the retailers have been clear that Vipps and MobilePay has to incorporate the BankAxept scheme in order for the efficient Norwegian system to prevail. Without incorporating BankAxept to the apps, we believe that two possible scenarios can occur. Either, retailers will not wish to offer mobile payment as a source of payment, or they will be forced to increase the prices in their stores in order to even out the costs from the Visa/Mastercard scheme. By reducing the number of payment apps, it can be easier to agree on common infrastructural standards, and make mobile payments more efficient. Although the infrastructure may change due to the regulatory changes it still offers great value for the existing players where both the bank- and retail industry have expressed positive remarks towards BankAxept with plans to work together in the future. As the international agents enters the market in 2018, it is uncertain whether or not they will or are able to, connect to BankAxept. Facebook, as an example, is a billion- dollar company which can afford the transaction costs of the Visa/Mastercard scheme and will probably not see the benefits of joining the existing infrastructure even though it is more cost efficient and highly secure.

We started the discussion around the framework of Garud and Karnøe (2003) and our findings show that regulations had a variety of impacts on the ecosystem and market in general. From the existing literature we have not found regulation to have an important role when discussing the ecosystem. In our view, regulation will have a much more active role than previous research accounts for. From our interviews and the consolidation that both MobilePay and Vipps did in 2016/2017, we see a clear indication that the mobile payment apps will continue to strengthen the cooperation in the ecosystem in order to stay competitive also in the future. However, PSD2 will open up the market, and from what we currently know it will probably increase the motivation for innovation in the existing ecosystem by creating a joint infrastructure, as new entrants will threaten the current dynamics of the existing ecosystem.

5.5 Practitioner implication

Our study on how incumbents can use the ecosystem to benefit in a disrupted market carries some implications for practitioners. In order for the disruptor to be successful it needs to establish some sort of connection to the existing ecosystem to get the solution from a niche- to the mass market. Practitioners working in industries, with complex ecosystems, that can be a target for disruptiveness-whether it is within product innovation or regulation can benefit from the findings of this study as guidelines for innovation work. Both incumbents and disruptors can find possible pitfalls and potentials when navigating through a rapidly changing market.

5.6 Limitations

As with all research, this study is not without its limitations. However, by being aware of the limitations the authors can easily assess the quality of the results. Non-response is a well-known limitation to researchers. Unfortunately, we experienced this issue. We contacted mCash and they were positive and wanted to contribute to the study, however at the same time the consolidation between mCash and Vipps happened and the interview never happened. This happened despite of several email correspondences where mCash confirmed their interest. Even though mCash originally said yes to an interview, they could not be forced to participate. Thus, we lost some primary data which we had to gather through secondary data sources instead. Even though we understand mCash´s situation, as it was a hectic time for them which made them priorities differently, the researchers were forced to continue the process due to the time constraint of this paper. This was something we expected since we are in fact looking at a case that is happening right now and there will be unforeseen events. We would also mention the case context as another limitation, there are a lot of rapid changes within this case, what we observe today is not necessarily the same tomorrow and it is therefore difficult to see the full effects of PSD2 as it will not be implemented before 2018.

Further the study is limited in the sense that we have data from only 7 participants in this specific ecosystem. The case is complex and it is difficult to present

accessible and realistic pictures of the complexity in writing. Since the case is highly complex it is also reasonable to believe that there are several other participants we could have talked to as well. Despite this limitation, we believe we have gathered an important group of participants where all of them have worked for a long time within the industry and all have management levels positions. It is also worth mentioning that there is a male bias in our study as we only interviewed one female participant. This is however to be expected and many positions in the financial sector is in a large degree male dominated. In addition, other ecosystem may have different characteristics than what we are looking at.

5.7 Evaluating the method

As with all research, consideration must be given in regards of construct validity, internal validity, external validity and reliability (Yin, 2014 (bok)). There are several researchers which have addressed the criticism of the case study. However, Bent Fluvbjerg (2006) have addressed five misunderstandings about case study research, where he argues that all of these misunderstanding can be re-written in one way or another. When it comes to construct validity, Yin (1994) suggest to use multiple sources of evidence. We have provided several interviews and secondary data in this study in order to ensure construct validity. Further, internal validity is mainly a concern for explanatory case studies, since we performed an exploratory case study, internal validity will not be discussed.

Lack of external validity is often discussed, as it is often difficult to generalize the findings to the greater population. Fluvbjerg (2006) have addressed this, and calls it a misunderstanding and argues that the case study is ideal for generalizing. Further, Stake´s (1995) argument is based on the harmonious relationship between the reader's experiences and the case study itself. He expected that the data generated by case studies would resonate experientially with a large cross section of readers, and facilitate a greater understanding of the phenomenon. Consequently, a case study of Norwegian payment applications cannot necessarily be generalized to other cases, on the other hand one will derive meaningful insight and gather important data to help understand a complex phenomenon inside of an industry. This information can be tested on other groups and industries with similar complexity and we believe that our

findings may be relevant to several industries which involves similar ecosystems as in the mobile payment industry.

Even though semi structured interviews have been criticized for reducing the reliability of the study, as it makes it hard to re-test the results, we will argue that this method was the best way for us to obtain the insight that was needed in this particular case. The semi structure interviews gave us the opportunity to get more flexibility around the interview questions and adapt to situational needs. We also strive for clarity and transparency in how our process was obtained.

5.8 Future Research

This study builds upon existing literatures, however there has been little previous research on our particular case or industry. This has made it difficult to find relevant theoretical frameworks to build our findings on. Due to time and space constraints of this master thesis, we have not been able to explore all the effects of our findings. We found that the market of mobile payment apps has mainly been in two different stages, one before PSD2 and one in preparation for PSD2. This has entailed that they need to consolidate in order to strengthen the resources available in order for them to be competitive also when the large international competitors potentially enter the Norwegian market. The impact of PSD2 has been somewhat of a surprise to us going into this study and by following the available theory of ecosystem and the emergence of technologies, we have found that the regulatory impact has not been stated well enough. It would be valuable to conduct a study on how the ecosystem changes in 2018 after the directive is in effect. We would also urge future researchers to look at how the companies prepare for future directives and regulatory changes. As our findings show, the attention towards regulatory changes have previously been low from the incumbents. Since our findings goes somehow against previous literature when it comes to how a disruptive actor succeed, we believe it will be beneficial for future researchers to look at this situation in similar industries, with tight ecosystems and rapid changes.

References

Ahuja, G., & Morris Lampert, C. (2001). Entrepreneurship in the large corporation: A longitudinal study of how established firms create breakthrough inventions. Strategic management journal, 22(6- 7), 521-543.

Armstrong, M. (2006). Competition in two-sided markets. RAND Journal Of Economics (Wiley-Blackwell), 37(3), 668-691. doi:10.1111/j.1756-2171.2006.tb00037.x

Ansari, S. S., Garud, R., & Kumaraswamy, A. (2016). The disruptor's dilemma: TiVo and the US television ecosystem. Strategic Management Journal, 37(9), 1829-1853.

Assink, M. (2006). Inhibitors of disruptive innovation capability: a conceptual model. European Journal of Innovation Management, 9(2), 215-233.

Blind, K., Petersen, S. S., & Riillo, C. A. (2017). The impact of standards and regulation on innovation in uncertain markets. Research Policy, 46(1), 249-264.

Bryman, A., & Bell, E. (2015). Business research methods. Oxford University Press, USA.

Caillaud, B., & Jullien, B. (2003). Chicken & egg: Competition among intermediation service providers. RAND journal of Economics, 309-328.

Chandy, R. K., & Tellis, G. J. (2000). The incumbent's curse? Incumbency, size, and radical product innovation. Journal of marketing, 64(3), 1-17.

Charitou, C. D., & Markides, C. C. (2003). Responses to disruptive strategic innovation. MIT Sloan Management Review, 44(2), 55-64.

Christensen, C. M. (1997). The innovator's dilemma: when new technologies cause great firms to fail. Harvard Business Review Press.

Christensen, C. M. & Raynor, M. E. (2003). The innovator's solution:creating and sustaining successful growth. Harvard Business School Press.

Christensen, C. M., Johnson, M. W., & Rigby, D. K. (2002). Foundations for growth: How to identify and build disruptive new businesses. MIT Sloan Management Review, 43(3), 22.

Danneels, E. (2004). Disruptive technology reconsidered: A critique and research agenda. Journal of product innovation management, 21(4), 246-258.

Flyvbjerg, B. (2006). Five misunderstandings about case-study research. Qualitative inquiry, 12(2), 219-245.

Garud, R., & Karnøe, P. (2003). Bricolage versus breakthrough: distributed and embedded agency in technology entrepreneurship. Research policy, 32(2), 277-300.

Garud, R., Kumaraswamy, A., & Karnøe, P. (2010). Path dependence or path creation?. Journal of Management Studies, 47(4), 760-774.

Gawer, A. (2014). Bridging differing perspectives on technological platforms: Toward an integrative framework. Research Policy, 43(7), 1239-1249.

Gilbert, C., & Bower, J. L. (2002). Disruptive change. When trying harder is part of the problem. Harvard business review, 80(5), 94-101.

Henderson, R. (2006). The innovator's dilemma as a problem of organizational competence. Journal of Product Innovation Management, 23(1), 5-11.

Hyvonen, S., & Tuominen, M. (2006). Entrepreneurial innovations, market-driven intangibles and learning orientation: critical indicators for performance advantages in SMEs. International Journal of Management and Decision Making, 7(6), 643-660.

Kanter, R., & Boehlje, M. (1999). From spare change to real change: The social sector as beta site for business innovation. Harvard Business Review, 77(3), 122-132.

Karnøe, P., & Garud, R. (2012). Path creation: Co-creation of heterogeneous resources in the emergence of the Danish wind turbine cluster. European Planning Studies, 20(5), 733-752.

Kemp, R., Schot, J., & Hoogma, R. (1998). Regime shifts to sustainability through processes of niche formation: the approach of strategic niche management. Technology analysis & strategic management, 10(2), 175-198.

Kemp, R. P. M., Rip, A., & Schot, J. W. (2001). Constructing transition paths through the management of niches.

Markides, C. (2006). Disruptive innovation: In need of better theory. Journal of product innovation management, 23(1), 19-25.

Markides, C., & Charitou, C. D. (2004). Competing with dual business models: A contingency approach. The Academy of Management Executive, 18(3), 22-36.

Moore, S. B., & Manring, S. L. (2009). Strategy development in small and medium sized enterprises for sustainability and increased value creation. Journal of cleaner production, 17(2), 276-282.

Peltoniemi, M., & Vuori, E. (2004, September). Business ecosystem as the new approach to complex adaptive business environments. In Proceedings of eBusiness research forum (Vol. 2, pp. 267-281).

Ritala, P., & Aarikka-Stenroos, L. (2016, June). Disruptive innovation in ecosystems: Path-creation and institutional barriers. In ISPIM Innovation Symposium (p. 1). The International Society for Professional Innovation Management (ISPIM).

Sandström, C., Magnusson, M., & Jörnmark, J. (2009). Exploring factors influencing incumbents' response to disruptive innovation. Creativity and Innovation Management, 18(1), 8-15.

Schmidt, G. M., & Druehl, C. T. (2008). When is a disruptive innovation disruptive?. Journal of Product Innovation Management, 25(4), 347-369.

Thomas, L. D., Autio, E., & Gann, D. M. (2014). Architectural leverage: putting platforms in context. The Academy of Management Perspectives, 28(2), 198-219.

Thomond, P., & Lettice, F. (2002, July). Disruptive innovation explored. In Cranfield University, Cranfield, England. Presented at: 9th IPSE International Conference on Concurrent Engineering: Research and Applications (CE2002).

Walsh, S. T., & Linton, J. D. (2000). Infrastructure and emerging markets: implications for strategy and policy makers. Engineering Management Journal, 12(2), 23-31.

Yin, R.K. (1994). Case Study Research and Design and Methods (2nd ed). London, England: SAGE Publication Ltd.

Yin, R. K. (2014). Case study research: Design and methods fifth edition. Los Angeles and London: SAGE.

Yin, R. K. (2003a). Case study research, design and methods (3rd ed., vol. 5). Thousand Oaks: Sage